

THE INDUSTRY'S RECOGNIZED AUTHORITY

**JANUARY
1954**

ROCK PRODUCTS

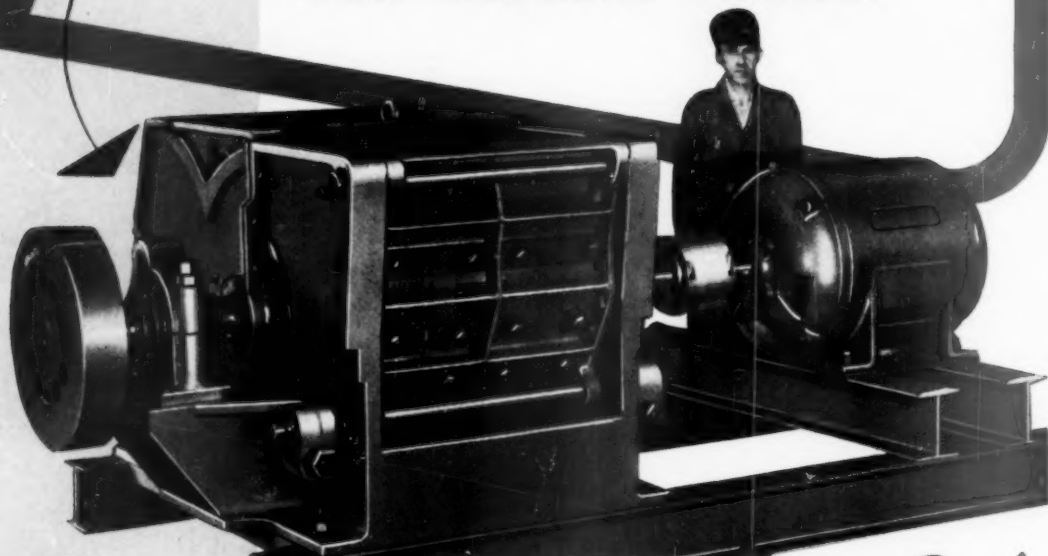
LARGEST PRODUCER CIRCULATION IN THE HISTORY OF THE FIELD

Crushing Plant of
Basalt Rock Co. Inc.,
at Napa, Calif.

The Basalt Rock Co. story in this issue.

Annual Review, Outlook and Directory Issue

**LOWER YOUR COST-PER-TON
FOR CRUSHED STONE!**



**OTHER
WILLIAMS EQUIPMENT**



ROLLER MILLS
— IMPACT and DRYER MILLS
— for fine grinding to 400
mesh or micron sizes

AIR SEPARATORS

— any type; for precision
control and high production
in fine grinding

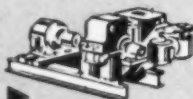


VIBRATING SCREENS

— in any size for any job.
1 to 3 decks, open or en-
closed.

**HELIX-SEAL
MILLS**

— for dust-free
grinding, and for
wet, sticky, greasy
materials.



Also: COMPLETE "Packaged" PLANTS
for crushing, grinding, separating.

**WILLIAMS Heavy Duty
HAMMER MILLS**

With a Williams, you don't need a primary crusher and another two or more secondary grinders—because a single Williams Hammer Mill does the complete job in one operation!

That means no additional machines are necessary—no extra foundations, housing, conveyors, drives or other equipment—a saving up to 75% on initial investment! And because a Williams does the job faster and better, you can cut your crushing costs up to 50%!

There's a Williams to suit your specific need, no matter what it is! It will pay you to get the facts now!

**TYPICAL WILLIAMS HAMMER MILLS
AND WHAT THEY CAN DO**

SUPER-SLUGGER Crushes power-shovel-loaded stone to $1\frac{1}{2}$ ", $\frac{3}{4}$ " — even to 8 mesh—in one operation! Capacities up to 550 tons per hour.

SLUGGER Reduces 100-pound stone to $1\frac{1}{2}$ ", $\frac{3}{4}$ " or agstone—in one operation! Capacities up to 100 tons per hour.

NF and GA TYPES Reduce 4" stone to $\frac{1}{2}$ ", agstone—or as fine as 20 mesh—in one operation! Capacities up to 200 tons per hour.

WILLIAMS PATENT CRUSHER AND PULVERIZER CO.

800 St. Louis Avenue

St. Louis 6, Mo.

WILLIAMS

CRUSHERS

GRINDERS

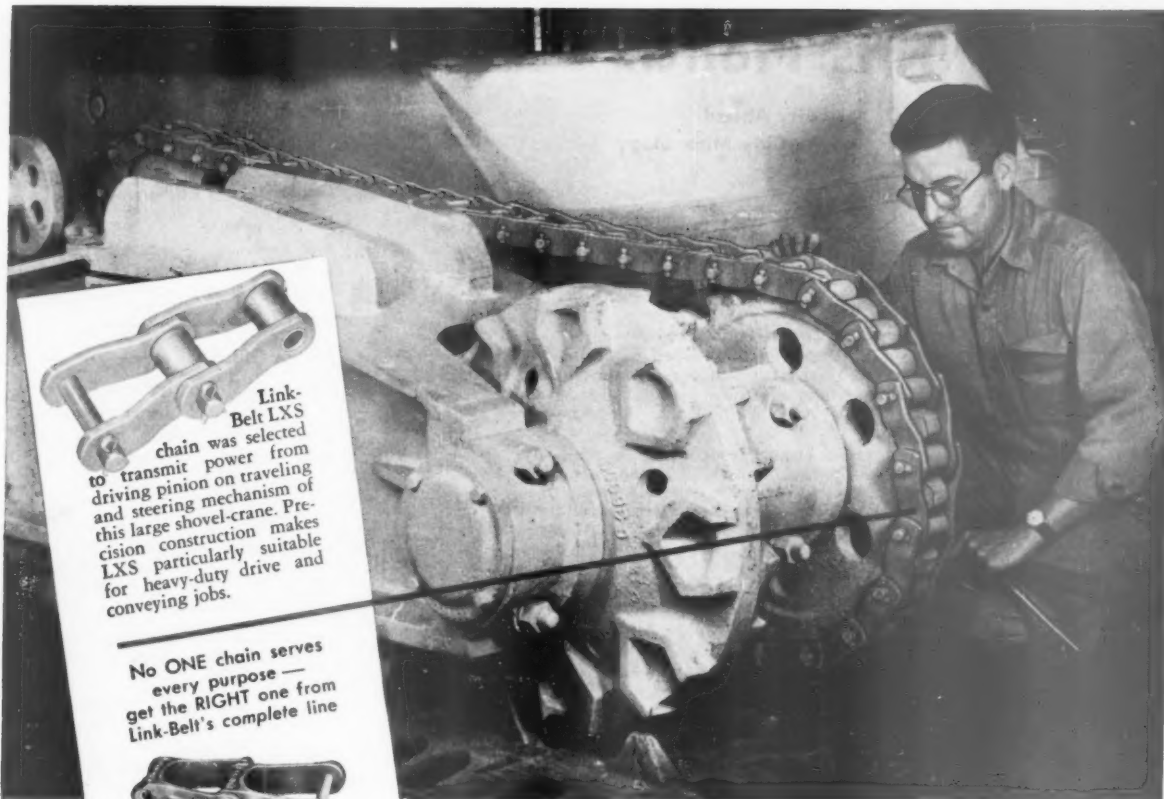
SHREDDERS



OLDEST AND LARGEST MANUFACTURER OF HAMMER MILLS IN THE WORLD

For long chain life under severe drive or conveyor service...it's

LINK-BELT LXS



 Link-Belt LXS chain was selected to transmit power from driving pinion on traveling and steering mechanism of this large shovel-crane. Precision construction makes LXS particularly suitable for heavy-duty drive and conveying jobs.

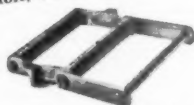
No ONE chain serves every purpose — get the RIGHT one from Link-Belt's complete line



Class 800 ley bushed chain—for heavy duty, abrasive conveying and elevating.



Class C combination chain—popular, durable, low cost design for elevators, conveyors.



Class H drag chain—for drag conveyors, handling material in runways or troughs.



Link-Belt "Flint-Rim" cast sprockets give extra long life. Cast steel sprockets for most severe service.

LINK-BELT offers the chain that's best for every job

Here's a fabricated steel roller chain that outlasts, outperforms ordinary chain where the going is tough. Accurate sizing of full-round pins, bushings and pitch holes assures users of Link-Belt LXS chain closer joint fit . . . better wear resistance.

Manufacturing refinements such as these are typical of every chain in the complete Link-Belt line. Accurate control of raw material specifications and manufacturing processes results in uniformity . . . longer chain life.

For all the facts on LXS chain, and for information on the complete line of Link-Belt chains and sprockets, see the Link-Belt sales representative or distributor nearest you.

LINK-BELT

CHAINS & SPROCKETS

LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Offices: New York 7; Canada, Scarboro (Toronto 13); Australia, Sydney; South Africa, Springs. Representatives Throughout the World.

13-789-A



ROCK PRODUCTS



JANUARY, 1954

THE INDUSTRY'S RECOGNIZED AUTHORITY

VOL. 57, No. 1

Bror Nordberg
Editor

Nathan C. Rockwood
Editorial Consultant

This Month

We Hear	69
Editorial—A Year of Opportunity Ahead	75
Rocky's Notes—A New Text on Clay Mineralogy	77
Labor Relations Trends	79
People in the News	81
Industry News	85
Hints and Helps	88
New Machinery	90
Rock Products Industries Will Have Another Year of Near-Capacity Operation	92
Construction in 1954 predicted to reach second highest level in history. Highways and public works will offset expected declines in other building activities <i>Bror Nordberg</i>	
The Basalt Rock Co. Story	104
Originally a crushed stone producer, this company has diversified its operations to include rip-rap, sand and gravel, ready-mixed concrete, concrete block, prestressed concrete, lightweight aggregates, concrete pipe, precast concrete houses, ship-building and steel products. <i>Bror Nordberg</i>	
Streestrete Floor, Roof and Wall System	129
Basalt Introduces the Precast Concrete Home	132
Reinforced Concrete Pressure Pipe	136
New plants built by Basalt Rock Co., at Fontana, Calif., manufacture concrete pipe and steel pipe <i>M. W. Loving</i>	
Producing Surface-Coated Lightweight Aggregate	143
Shale calcined in four rotary kilns with product treated for free lime removal to produce "Basalite" aggregate <i>Walter B. Lenhart</i>	
Prospective Chemistry of Cement and Concrete	147
Part IX. More about the structure of water and its effects on silicates <i>Nathan C. Rockwood</i>	
Progress in Technical Developments As Observed in Field Travel	150
Depletion in the rock products industries has led to the use of new methods of recovering materials formerly wasted <i>Walter B. Lenhart</i>	
Demands for Cement in 1954	157
Will Approach All-Time Peak	
Majority of manufacturers anticipate no decline in volume of business <i>Bror Nordberg</i>	
Missouri Producers Discuss Promotion of Agstone Market	170
CONCRETE PRODUCTS—	
Industry's Newest High Pressure Steam Curing Plant	215
National Brick and Supply Co., installs six new autoclaves in block plant <i>Walter B. Lenhart</i>	
Concrete Masonry Industry Enters A Competitive Era	220
Outlook for business is optimistic provided industry steps up sales activities. N.C.M.A. has expanded program for promotion <i>Bror Nordberg</i>	
Stress Quality and More Diversification at Southeastern Concrete Block Meeting	226
New Tests and Manufacturing Techniques Reviewed by Southeastern Pipe Producers	230
Advantages and Disadvantages of Non-Agitating Delivery Equipment <i>Jas. A. Nicholson</i>	233

R. S. Torgerson, Managing Editor
Walter B. Lenhart, Associate Editor
Ray C. Giddings, Associate Editor
M. K. Smith, Assistant Editor
E. M. Amacher, Assistant Editor
N. G. Lange, Assistant Editor

Contributing Editors

Victor J. Azbe
F. O. Anderegg
M. W. Loving
James A. Barr, Jr.

Home Office

P. D. Allen, General Manager
Mary A. Whalen, Subscription Dir.
C. M. Hancock, Production Manager
C. P. Teats, Field Representative

District Offices

Eastern Area—Reginald W. Davis, Manager; Chas. Daly, Assistant, 522 Fifth Ave., New York 36, Tel. Murray Hill 2-7888.

Central Area—R. E. Keine, Manager, Hanna Bldg., Cleveland 15, Tel. Main 1-4362.

Midwest Area—E. H. Hickey, Manager, 309 W. Jackson Blvd., Chicago 6, Tel. Harrison 7-7890. Donald C. White, representative.

Western Area—L. C. Thawn, Manager, 309 West Jackson Blvd., Chicago 6, Tel. Harrison 7-7890.

Pacific Area—Duncan Scott & Co., Mills Bldg., San Francisco 4, Tel. Garfield 1-7950. In Los Angeles 5, 2978 Wilshire Blvd., Tel. Dunkirk 8-4151.

London, England—Harold F. Charles, Managing Director, Maclean-Hunter, Ltd., Wellington House, 125 Strand, London, W. C. 2.

ROCK PRODUCTS is published monthly by MACLEAN-HUNTER Publishing Corporation, 309 West Jackson Blvd., Chicago 6, Illinois; Horace T. Hunter, President; P. D. Allen, Vice-President; Ralph K. Davis, Secretary. Copyright, 1954, by Maclean-Hunter Publishing Corporation. Entered as second-class matter, Jan. 30, 1936, at the Chicago, Ill., post office under the act of Mar. 3, 1879. Additional entry at Long Prairie, Minn.

ROCK PRODUCTS is indexed regularly by Engineering Index, Inc. and the Industrial Arts Index. SUBSCRIPTION INFORMATION: Subscription Price: United States and Possessions, Canada one year, \$2.00; two years, \$3.00; three years, \$4.00. Pan American, one year, \$4.00; two years, \$7.00; three years, \$10.00. All other foreign one year, \$6.00; two years, \$11.00; three years, \$15.00. Twenty-five cents for single copies. Canadian subscriptions and remittance may be sent in Canadian funds to ROCK PRODUCTS, P. O. Box 100, Terminal "A," Toronto, Canada.

To Subscribers—Date on wrapper indicates issue with which your subscription expires. . . In writing to have address changed, give old as well as new address.

RESEARCH KEEPS

B.F. Goodrich

FIRST IN RUBBER



Rubber moves jaws that chew rocks by the ton

A typical example of B. F. Goodrich improvement in rubber

INSIDE that mass of metal are big jaws that chomp like human teeth. But it's *rocks* they bite and grind—2000 tons a day—for building concrete roads! The jaws are powered by rubber belts and every time they grip and grind a new batch of rock, you can imagine the jerking jar that hits those belts. They were being broken and torn to shreds in days.

Looking for ways to save, the contractor tried a kind of belt new to him—Grommet V belts—developed and made only by B. F. Goodrich. A grommet is a cord loop inside the belt. It is made like a giant twisted cable except

that it's endless—no splices or overlaps. The grommets make it a flexible belt but one that stands shocks and heavy loads far better than ordinary belts. No other kind of belt has grommets; no other belt stands so much punishment or lasts so long.

After the B. F. Goodrich Grommet V belts were installed, it was found they lasted *200% longer* than the belts used before—important money was saved, and time formerly needed for replacement could now be used in profitable production.

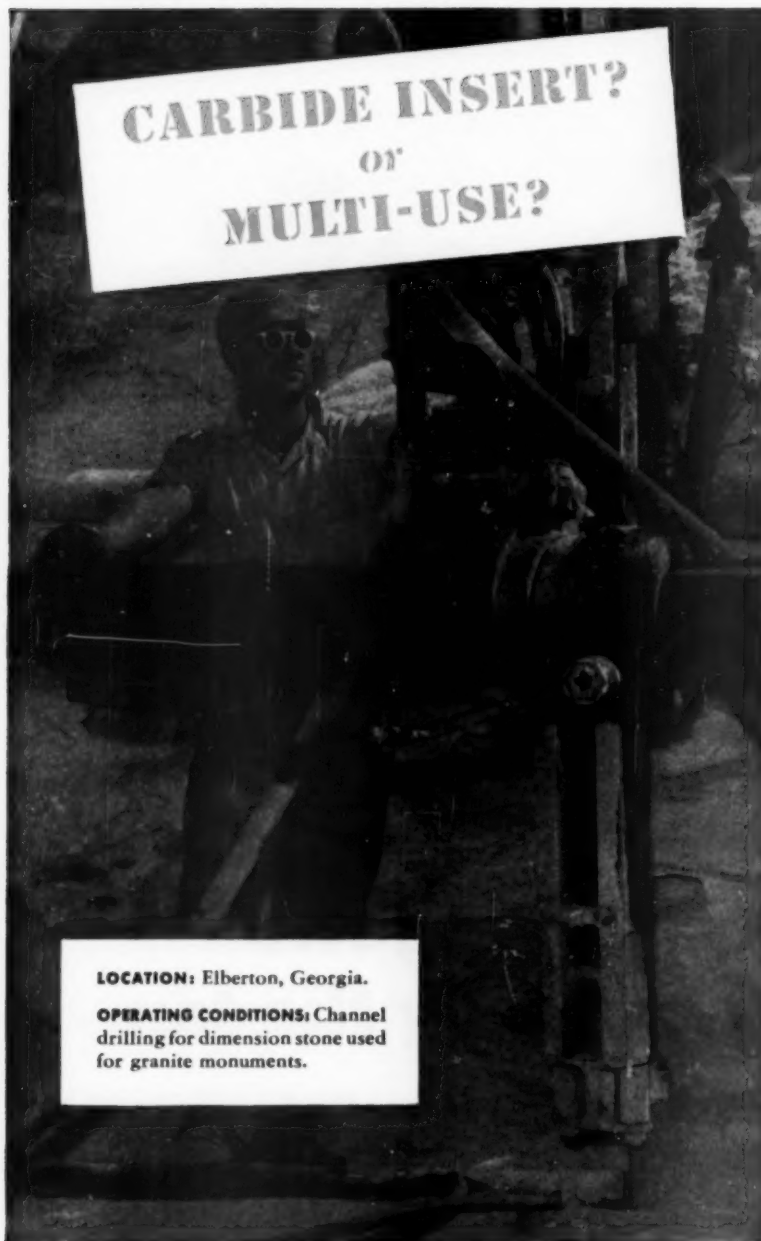
This performance is typical, not an unusual case at all. It's the result of

a policy at B. F. Goodrich—the policy of constant product improvement, of never considering a product “good enough”. If you use rubber belting, hose or other industrial rubber goods, it will pay you to check with your BFG distributor before you buy to see if you, too, can save money because of B. F. Goodrich research. Or write *The B. F. Goodrich Company, Dept. M-144, Akron 18, Ohio.*

Grommet—T. M. The B. F. Goodrich Co.

B.F. Goodrich
INDUSTRIAL PRODUCTS
DIVISION

Harmony Blue Granite Company increases drilling speed 50% with TIMKEN® carbide insert bits!



HARMONY Blue Granite Company increased drilling speed 50%, cut drill steel requirements and attained maximum production by switching to Timken® carbide insert bits.

Ideal for high speed drilling through hard and abrasive ground, Timken carbide insert bits have also proved most economical for constant-gage holes, small diameter blast holes and very deep holes.

Yet carbide insert bits aren't best for *every* job!

For ordinary ground, for instance, Timken multi-use bits are most economical. With correct and controlled reconditioning, they'll give you the lowest cost per foot of hole when full increments of steel can be drilled.

Both Timken bit types—multi-use and carbide insert—have these advantages: quickly and easily changed; special shoulder unions which protect threads from drilling impact, and made from electric furnace Timken fine alloy steel. What's more, many sizes of Timken carbide insert and multi-use bits fit the same steel!

Want to make sure you're using the best type bit for the job? Call on the Timken Rock Bit Engineering Service. Our address: The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

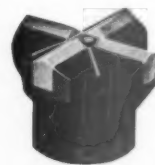
TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

**your best bet for the
best bit...for every job**



Timken threaded
multi-use rock bit



Timken threaded
carbide insert rock bit

THEIR BUSINESS is ROCK - TOO!

SLUGGING into stuff like this, hour after hour, is punishment for any machine. Watch a Northwest at work in this kind of digging — or any kind of digging. There is no stutter — no restart — no dipper juggling. It's a clean sweep of the dipper up through the material — a smooth cycle to the track and a quick return back to the cut. That means real output at the end of the day.

This is the second Northwest in this quarry of Geo. M. Baker at Lockwood, Missouri. Their business is Rock, too! The first Northwest saw over 10 years' service in this same tough going. Mr. Baker has proved his Northwest. The service he has received, along with that of countless other quarry operators who have had to get output in rugged "going", is the best guarantee that you'll get the kind of service you want.

The Northwest is a *real* Rock Shovel and if you have a *real* Rock Shovel you'll never have to worry about output in *any* kind of digging. Talk it over with a Northwest Man.

NORTHWEST ENGINEERING COMPANY
135 South LaSalle Street, Chicago 3, Illinois



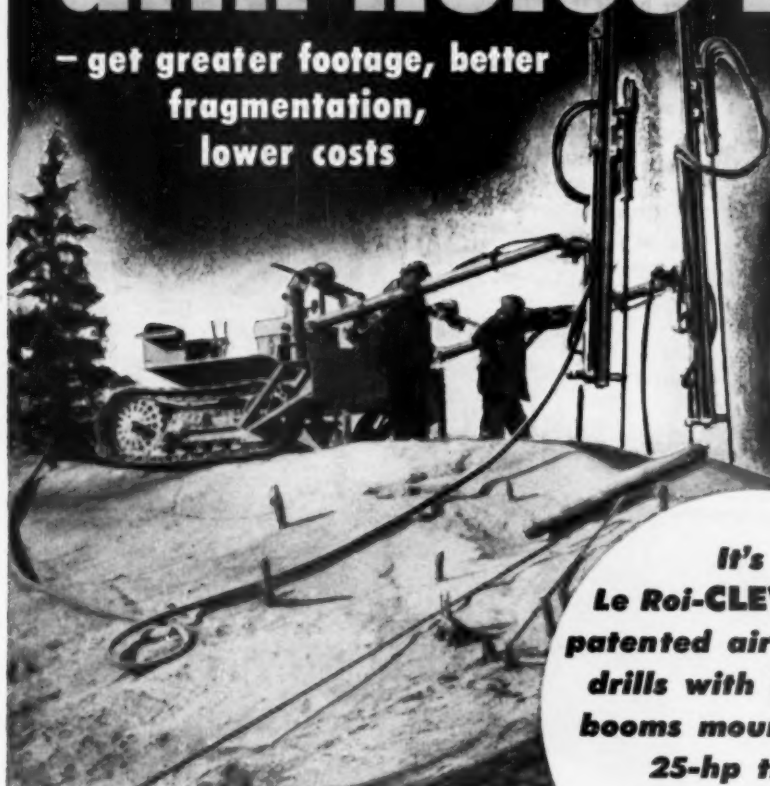
NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

Convertible for any Mining Material Handling or Excavation Problem

drill holes faster

— get greater footage, better
fragmentation,
lower costs



Use a
**Le Roi-
CLEVELAND**
**T286 Self-Propelled
Dual Drill Rig**

**It's 2
Le Roi-CLEVELAND
patented air feeds and
drills with air-motor
booms mounted on a
25-hp tractor**

**3 speeds forward . . .
1 speed reverse**



One Le Roi Airmaster 600 cfm Compressor provides all the low-cost air you need to operate the T286 Dual Drill Rig, when it is equipped with Le Roi-CLEVELAND 4" drifters. A smaller compressor is sufficient, when the T286 is equipped with the 45-lb. H10 or 80-lb. H23 (3 1/8" bore) sinker drills or 3 1/2" bore D25 drifter.

WITH a Le Roi-CLEVELAND T286, your man *drives* where he wants to go — over almost any kind of ground — and tows the compressor right along.

He drills and cleans holes as deep as 30' — in any direction — at any angle — with less air.

Have your nearby Le Roi distributor show you how this all adds up to faster drilling, better hole spacing, greater footage, better fragmentation, lower costs.

Write for Bulletin RD-21.

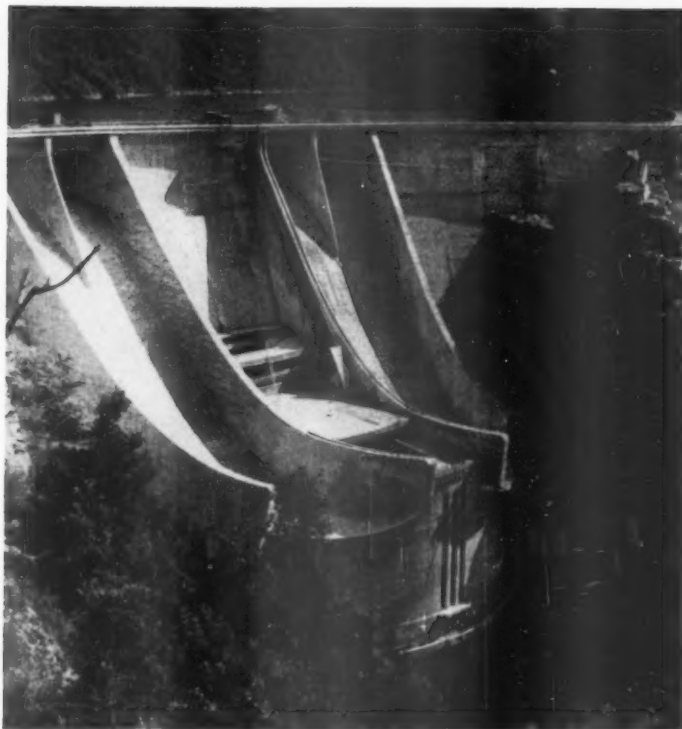
C-142

LE ROI COMPANY

A Subsidiary of Westinghouse Air-Brake Co.
CLEVELAND ROCK DRILL DIVISION

12500 Berea Road • Cleveland 11, Ohio
Plants: Milwaukee, Cleveland and Greenwich, Ohio





ENGINEERING SIDELIGHTS OF L'AIGLE DAM:

Construction of this striking Hydro-electric plant, spanning the Dordogne River in France, is a tribute to the ability of modern engineers. Located at the base of a narrow canyon, the dam skillfully combines practical design and beauty with great strength and economy of construction. The gravity-arch dam is 90 meters (295.2') high with machinery housed under the spillways to conserve lateral space. Machinery area and spillways are incorporated into the main structure to further cut construction costs. The famous curved "ski jump" spillways not only add distinctive beauty, but discharge water away from the toe of the dam to avoid erosion. These unique two-purpose curves made possible a lighter dam requiring less time and material to erect.

Curved Crushing Surfaces of Traylor TY Gyratories Help Solve Your Production Problems

Traylor original *curved* crushing surfaces are engineered to meet today's production requirements. They apply power as a direct crushing force to produce a more uniform cubical aggregate on less power per ton. This efficient use of power also adds to your profit picture by reducing wear and replacement costs. The curved surfaces of Traylor Crushers also reduce lifting and churning . . . choking and packing of material in the crushing chamber. That's because each zone in the crushing chamber has greater capacity than the preceding zone . . . aggregate has free fall through the all-round bottom discharge. Investigate the advantages of this compact, efficient secondary crusher. Traylor free bulletin 7112 gives complete specifications and illustrations. Send for your copy today.



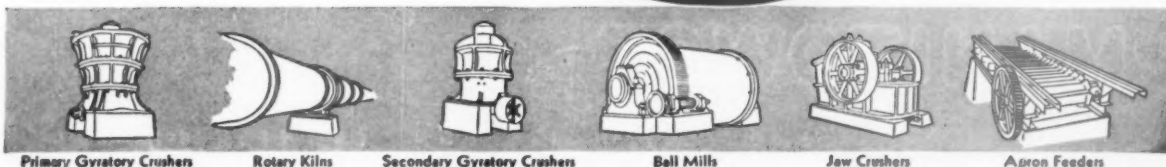
TRAYLOR ENGINEERING & MFG. CO.

605 MILL ST., ALLENTOWN, PA.

SALES OFFICES: New York • Chicago • San Francisco
CANADIAN MFRS.: Canadian Vickers, Ltd., Montreal, P. Q.



Built in six sizes with
feed openings from 3' x 22".



Primary Gyratory Crushers

Rotary Kilns

Secondary Gyratory Crushers

Ball Mills

Jaw Crushers

Apron Feeders



**It takes a MANITOWOC
for BIG, steady output**

"BEST MACHINE WE HAVE EVER OWNED" says Anthony J. Ruggiero, President of Acme Sand & Gravel Co., Burlington, Massachusetts

This Maniotowoc 2 yd. shovel loads out more than 2,000 cubic yards of bank gravel per 12 hour shift — that's yardage in any man's language. Despite this high production and continuous operation, Acme spent only \$77.25 for repairs over a 4 MONTH PERIOD — and that's economy that means profits.

No wonder then that Mr. Ruggiero says, "This company operates 5 other machines. This is the first Maniotowoc it has purchased and we are pleased to state it is the best machine we have ever purchased."

It's this kind of performance and customer satisfaction that Maniotowocs are delivering all over the country, and we believe it's the big reason why more and more shovel users are switching over to the mighty Maniotowoc. May we send you complete details on the Maniotowoc line? MANITOWOC ENGINEERING CORP., MANITOWOC, WIS.

MANITOWOC
Speed Crane

SHOVELS

1-5 YD.

CRANES

18-100 TON



Iafolla Crushed Stone Company, Inc., and its affiliate, Iafolla Construction Company, Inc., own and operate this quarry at Portsmouth, N. H. After processing, stone and trap rock obtained from the quarry are either used by the Iafolla Construction Company on its highway construction projects, or are sold to other contractors. Both companies have used Gulf products for over five years and report consistently smooth equipment performance and low maintenance costs.

Gulf Quality Lubricants *and* Fuels keep equipment operating smoothly at Iafolla Crushed Stone Company

Just about No. 1 requirement for a smooth-running quarry operation is smooth-running equipment. That's why so many leading operators, like Iafolla Crushed Stone Company, for example, prefer the petroleum products identified by the familiar Orange Disc.

They have found that Gulf lubricating oils and greases provide better protection for every unit; and that Gulf fuels help insure

top engine performance.

Gulf lubricants and fuels work as a team to help quarry operators get more hauls, fewer overhauls, and lower maintenance costs!

Gulf quality products are available to you—along with that Good Gulf Service—through 1400 warehouses in 31 states from Maine to New Mexico. Write, wire, or phone your nearest Gulf office.

GULF OIL CORPORATION • GULF REFINING COMPANY
PITTSBURGH 30, PENNSYLVANIA



Tournarockers climb grades

WHICH STOP TRUCKS



Loads of clay and shale overburden are wasted in a ravine (above); limestone is hauled direct to hopper for delivery to plant.



2 "D's" remove 180 bank yards of clay overburden hourly; in spare time, haul rock at hilly Iowa limestone quarry

Ray Cook Construction Co., Ames, Iowa, formerly used several makes of 4 and 5-ton dump trucks to haul overburden and shot-rock from their limestone pit. About a year ago, they opened a section where grades to the spoil bank reached 12%. This pull was too steep for any of the trucks to make with a full load. So Cook decided to try two 9-ton D Tournarockers.

1250' cycle every 5½ minutes

In typical operation, these big Rear-Dumps moved 9 to 10 bank yds. of sandy clay and heavy blue shale per load. Their big tires and high ratio of horsepower to loaded weight took them easily up the steep grades. The 625' haul took only 1½ minutes. Complete load-haul-dump-and-return cycle of 1250' took 5½ minutes. Production per 55-minute hour averaged 90 to 100 bank yards per machine.

As a result of this high rate of output, Mr. Cook assigned all stripping to the 2 Tournarockers . . . found they still had time to handle 50% of the easier pit-rock haul.

95% efficient over 2600 hours

Overall, the versatile 122 hp "D's" have been 95% mechanically efficient. With about 2600 hours apiece in 1½



LeTourneau-Westinghouse



"Tournarockers will go up grades a truck can't make," says Owner Ray Cook. "They get around in a smaller area, too." Their turn radius is 12'1".

seasons of work, they still are running on original tires. They drive everywhere without damage to surface or tires . . . over rough pit roads, across paved highways and curbs, over railroad tracks. Roaded to the job from Peoria, Illinois, they averaged better than 20 mph in traffic . . . completing the 290-mile trip in 14 hours.

"I never want to go back to truck driving," says Operator Bill Gray. "Tournarockers are much easier to maneuver."

Investigate today

To find out how these high-speed, easy-operating, electric-control Rear-Dumps can add to your profits, let us show you more owner-verified job reports. There's a size Tournarocker to fit your needs . . . 9, 18, 35, or 50 tons.

The recent purchase by Westinghouse Air Brake Company of the earthmoving and related business of R. G. LeTourneau, Inc., combines two firms which are world leaders in their respective fields. It brings together the earthmoving know-how of LeTourneau and the precision manufacturing and research experience of Westinghouse Air Brake. You can buy from this new company with even greater confidence than before.

Tournarocker—Trademark Reg. U.S. Pat. Off. R-465-Q



Tournarockers haul 100% of the overburden (above), plus 50% of the limestone needed for plant output of 1000 tons daily. Nine to 10-yd. load requires 7 or 8 passes of well-heaped dipper. "I'd rather load a Tournarocker than a truck any time," says Shovel Operator Ed McKenna. "They're just the right height, and they load easier."



Company

PEORIA,
ILLINOIS

HOW A 22-TON TRACTOR SHOVEL

Hustles All Phases of Production in a Granite Quarry

The purchase of a 3-cu.-yd. Allis-Chalmers Tractor Shovel has brought about a new, more efficient method of operation in a large Texas granite quarry. The versatile HD-15G, equipped with hydraulic front-end shovel and rear-mounted winch now speeds all phases of production.

It scoops up all sizes of granite from fine aggregate to large blocks and loads it into

trucks. It winches granite from inaccessible corners and drags 25-ton blocks to rail-mounted cranes for loading onto flat cars. Then, to round out its usefulness, it handles such miscellaneous jobs as building haul roads, laying rock on jetties, excavating for new construction, clearing land, stripping overburden and digging water reservoirs.

Loads Aggregate or Big Blocks Quickly, Safely. Number one assignment for the Allis-Chalmers HD-15G is loading granite into trucks. Granite ranges from "turkey grit" to tombstones. Big blocks are scooped up quickly and safely in the 9-ft. 3-in.-wide bucket. Full hydraulic control enables the operator to ease heavy ones into truck beds with a minimum of shock.





▲ **Winches the Big Ones from Anywhere.** With a mounted winch, the tractor drags largest granite blocks, weighing about 25 tons, from anywhere in the quarry to a rail-mounted crane. This method eliminates the expense of moving tracks so that cranes can reach granite. Winch also pulls smaller blocks from inaccessible corners to the Tractor Shovel bucket.



▲ **Works Anywhere.** On special assignment, the HD-15G helps build jetties near Galveston. The job required laying in over 1,500 tons of rock. This tractor dug, carried and placed rock in position. Large blocks, weighing over 5 tons, were handled with a rear-mounted boom.



▲ **Handles Tough Excavating.** Here is one of many jobs on which the Tractor Shovel demonstrates its powerful excavating ability. In order to assure a constant supply of water for buffers and other machines, the HD-15G deepens and widens a nearby reservoir. In addition, it digs ramps, handles cut and fill work for access roads and strips overburden from granite deposits.



▲ **No End to Its Usefulness.** The HD-15G continually finds new uses, new jobs in and around the quarry. Every day operators take advantage of its power and versatility for such assignments as clearing land, giving bogged-down trucks a lift, skidding heavy machinery, pulling, pushing, lifting, carrying material of all kinds.

Ask your Allis-Chalmers dealer to show you how the HD-15G can help you meet the demand for greater output. Let him tell you, too, about the three other sizes of Allis-Chalmers Tractor Shovels from the 1-yd. HD-5G to the giant, 4-yd. HD-20G.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Another ALL LIPPMANN Pit



180 tons per hr. washing capacity

Here is a complete, mobile crushing, screening and washing plant that is a profit maker in any pit. It's Lippmann-engineered from bank to stockpiles to produce both washed and unwashed grades. It's portable so that it can be moved quickly over the highway to a new location. Designed with true balance and sturdy construction, these Lippmann portable units are so smooth running that when reaching destination they actually require little or no blocking before going into action, another profit making extra that is usual with Lippmann equipment.

Whatever your needs for sand, gravel, stone and aglime production, you can look to Lippmann for the kind of performance that spells profitable, steady operation . . . the kind of design and construction that has made Lippmann famous for quality everywhere . . . the kind of quality that in a span of 33 years has made Lippmann crushing, screening and conveying equipment important to the operations of many leading material producers and contractors the world over. Lippmann Engineering Works, 4605 W. Mitchell St., Milwaukee 14, Wisconsin.

100% Equipped with LIPPMANN Portable Units

- 1** Lippmann feeder-hopper with grizzly and reciprocating plate feeder.
- 2** Lippmann radial stacker from hopper to primary crusher.
- 3** Lippmann Primary Crushing Plant with 24" x 36" "Grizzly King" jaw crusher and "Screen-All" vibrating screen.
- 4** Two Lippmann Portable Secondary Crushing units with Roll Crushers and "Screen-All" vibrating screens. One delivers to the unwashed stockpiles, the other to the washer.
- 5** Lippmann Portable Washing plant has large scrubber, triple deck "Screen-All" vibrating screen and efficient sand drag.
- 6** Seven Lippmann portable belt conveyors stockpile the different grades of sand and stone, and load trucks.



LIPPMANN

CRUSHERS FEEDERS SCREENS CONVEYORS CRUSHING & WASHING PLANTS



Drilling 20-hours a day with Jaeger 600's

Shooting 1,500,000 tons of rock on new West Virginia Turnpike

14 cuts ranging from 30 to 147 ft. deep, a total of 1,500,000 cu. yds. of excavation, 85% of it rock... With this contract, H. W. Holt & Son put three 2½ yd. shovels working two 10-hour shifts and set up to drill and shoot 16,000 cu. yds. of rock a day to keep ahead of the shovels.

They chose the most dependable

heavy duty drilling equipment yet developed for rock work — ten 4" wagon drills powered by five 600 ft. compressors, four of them Jaeger "Air Plus" units.

Drilling a steady 20 hours a day, in patterns close enough to insure good fragmentation, even cleavage and a minimum of secondary drilling,

these "teams" proved able to average the needed yield of 80 yds. per hour per drill.

Over the 88 mountainous miles of West Virginia's Turnpike (a rugged job if ever there was one), the big majority of air compressors of all makes have been 600's, the "new standard" rating introduced by Jaeger in 1946 and later adopted by all others. As yet, Jaeger "Air Plus" are the only compressors *completely engineered* to the other "new standard" ratings — 365, 250, 185, 125, 75 cfm. Like the 600, they meet the higher requirements of today's tools with adequate air, produced at the lowest known cost per cubic foot.

For complete information, see your Jaeger distributor or ask for Catalog JC-1.

THE JAEGER MACHINE COMPANY

603 Dublin Avenue, Columbus 16, Ohio

TRACTOR LOADERS • PUMPS • CONCRETE MIXERS • TRUCK MIXERS • PAVING MACHINES

A UNIVERSAL production report to crushing plant operators

Plant Site	Herington, Kansas
Operators	Anderson-Oxandale
Requirements	High tonnage of aggregate to meet state's exacting specification. Frequent moves and changes in product specification required.
Equipment	Universal 3240 Impact Master. Universal portable screening and blending unit.
Type of rock	Dolomite limestone.
Production	Currently they are meeting a difficult specification calling for a large percentage of minus $\frac{1}{4}$ inch. They are producing up to 150 yards per hour of which 100% passes a one inch screen, 90% passes a $\frac{3}{4}$ inch screen, 50-60% passes a $\frac{1}{4}$ inch screen. When desired Anderson-Oxandale can reduce the production of minus $\frac{1}{4}$ inch material by at least 50%.



Anderson - Oxandale's portable 3240 Impact Master, crushing, screening, blending and loading plant operating near Herington, Kansas.

Anderson - Oxandale had to have a crushing plant that could be moved frequently with a minimum of down time, produce high tonnages of top-quality aggregate at each set-up, and meet exacting specifications. The Universal Impact Master (portable) with *Controlled Impact Action* combined with Universal's portable screening and blending unit was the answer.

The Impact Master, with *Controlled Impact Action* gives them four important advantages: (1) Greater control of the finished size of your material. (2) Cleaner, more cubical aggregate. (3) Lower operating cost - it requires less horsepower per ton. (4) Lower maintenance cost.

What Is Controlled Impact Action:

Control point 1: Controlled feed chutes the rock into the unobstructed path of the first rotor ham-

mer circle for terrific impact, providing maximum unobstructed penetration. The angle of the plate can be quickly changed to handle rock of different size and density and meet varying quarry conditions. Incoming material penetrates the first rotor hammer circle at the correct angle for efficient breaking. **Control point 2:** you control the range of sizes by simply regulating the speed of the rotor hammers. **Control point 3:** you can easily adjust the stripper bar and lower screen grate to get the percentage of sizes you want.

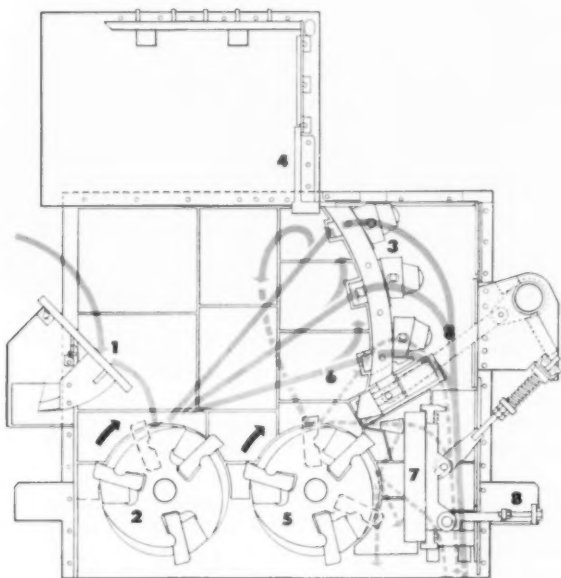
With these three methods of control, you get what you want. It's no hit or miss proposition. "Controlled Impact Action" is more than a phrase with Universal. It's the key to the way all Universal Impact Masters produce more aggregate of higher quality to exact specification at lower cost.



Portable 3240 Impact Master with 3 speed transmission drive from diesel power mounted to the side. Slide mounted 36" x 16'-0" portable apron feeder. Eighteen inch closed circuit return conveyor from portable screening unit. 30" delivery conveyor to portable screening unit.



Universal portable screening and blending unit. All electric driven with 5' x 14' 3 deck inclined gyrating screen equipped with ball tray. Two 30" forward delivery conveyors and one 18" side delivery conveyor. Positive blending chutes with gates control different aggregate specifications. 18" return conveyor to Impact Master.



1. Adjustable feed plate
2. First rotor hammer
3. Deflector screen grate
4. Feed chute backplate
5. Second rotor hammer
6. Stripper bar
7. Bottom screen grate
8. Adjustments

How the Universal Impact Master works:

The diagram at left shows the flow of material. Adjustable feed (1) chutes the incoming rock into the first rotor hammer circle at proper angle. Rock is hit in motion, exploded into cubical shaped pieces by terrific impact of the rotor hammers, and at the same time hurled toward the deflector screen grate (3) where finished sizes are immediately discharged. Oversize particles are deflected upward, hit the feed chute back plate (4) and drop down into the path of the second rotor hammer circle (5) where they are reduced by impact and projected toward the bottom half of the deflector screen grate and the lower screen grate for immediate discharge. Both rotor hammers rotate toward the discharge opening. Material always flows rapidly in one direction. No grates, screens or bars obstruct the discharge opening. Large expansion chamber is also completely free of obstructions. All breaking is done by impact. There is no attrition, abrasive or grinding action. Thus wear is kept to a minimum.

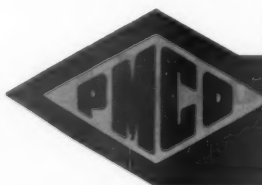
More and more operators are turning to the Universal Impact Master, with "Controlled Impact Action." Its high production capacity, excellent performance, and simplicity of construction just naturally results in a more efficient, more profitable operation. Tonnages up to 750 tons per hour. Available in sizes: 3240, 3645, 4250 and 5260. Write for complete information today.

UNIVERSAL ENGINEERING CORPORATION

617 C Avenue N.W. Cedar Rapids, Iowa

A Subsidiary of Pettibone Mulliken Corporation, Chicago

UNIVERSAL GAVE CEDAR RAPIDS ITS ORIGINAL FAME FOR QUALITY CRUSHERS IN CEDAR RAPIDS SINCE 1906

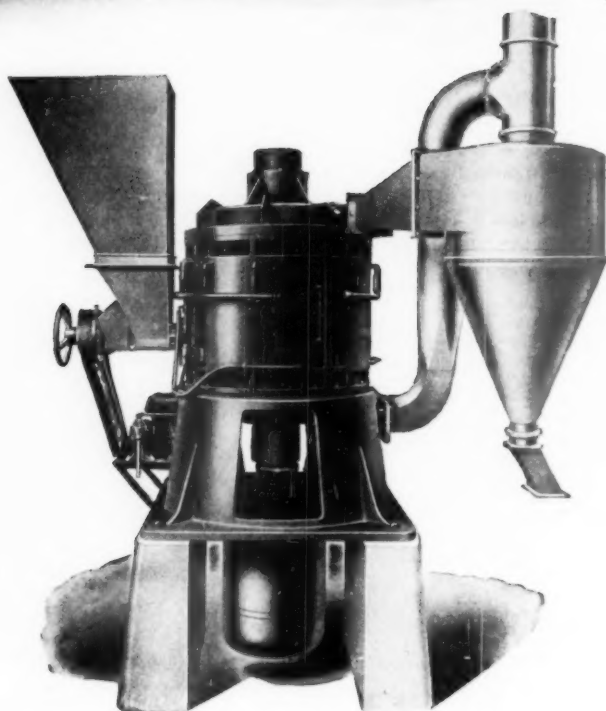


UNIVERSAL

Pulverizing

EXTREME HIGH
FINENESS RANGE

with the
**RAYMOND
VERTICAL MILL**



This Raymond Bulletin No. 70 gives detailed information on superfine grinding operations. Write for your copy.

THIS specialized Fine Grinding Unit with Double Whizzer Air Classifier has an outstanding record in the production of powdered materials in the lower micron sizes.

The Vertical Mill operates in a fineness range beyond that of ordinary mills. Many types of products can be reduced to 95% to 99% finer than 15 to 20 microns. On some materials, finenesses as high as 95% to 99% finer than 5 to 10 microns have been produced.

Wherever you have an exacting fine grinding job, requiring extreme fineness and uniformity in the end-product, you can depend on the Vertical Mill for meeting top specifications with consistent low tonnage costs.

There are many successful installations now operating in modern plants on: various non-metallic minerals, limestone, marble, kaolin, chemicals, talc, graphite, dyestuffs and many special materials.

If you have a similar grinding problem, Raymond experience is your assurance of getting the right mill for the job.

COMBUSTION ENGINEERING, INC.

Raymond Division

1307 NORTH BRANCH ST.,
CHICAGO 22, ILLINOIS

SALES OFFICES IN
PRINCIPAL CITIES

**Command the market
for
low-cost aggregate
with the**

Cedarapids
Built by
IOWA

Commander



TODAY, as never before, you need big volume output *and* low-cost production to command the market for aggregate.

That's what you get with the Cedarapids Commander!

The Commander Plant shown above produced between 300 and 400 tons per hour of 1 1/4" material with 20% crushing, and the two draglines feeding it couldn't keep it up to full capacity!

Low maintenance and operating costs, the result of Cedarapids-Quality construction and field-experienced design, keep production costs at absolute minimum.

For today's stiff competition, the producer who turns out *more* tons per hour, at *less* cost per ton, is top man on the profit pile.

Ask your Cedarapids distributor to show you all the Commander advantages.

HERE'S WHY YOU MAKE MORE PROFIT WITH THE COMMANDER

- Big 30" x 22" Roll Crusher provides the increased secondary crushing capacity required for meeting today's specifications for smaller sizes of crushed aggregate.
- Large 48" x 10' Horizontal Vibrating Screen gives extra screening capacity to balance the greater roll crusher output.
- 30" wide conveyers throughout the plant easily handle the high capacity. The Commander is designed to eliminate any possibility of bottlenecks.
- You get this increased capacity with no increase in maintenance or operating costs! That's the Commander's profit-benefit to you.

WRITE TODAY FOR BULLETIN COM-1

It contains complete details of all the features that make the Commander "the plant of the year" for low-cost aggregate production.



IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U. S. A.



Master Bituminous
Mixing Plant



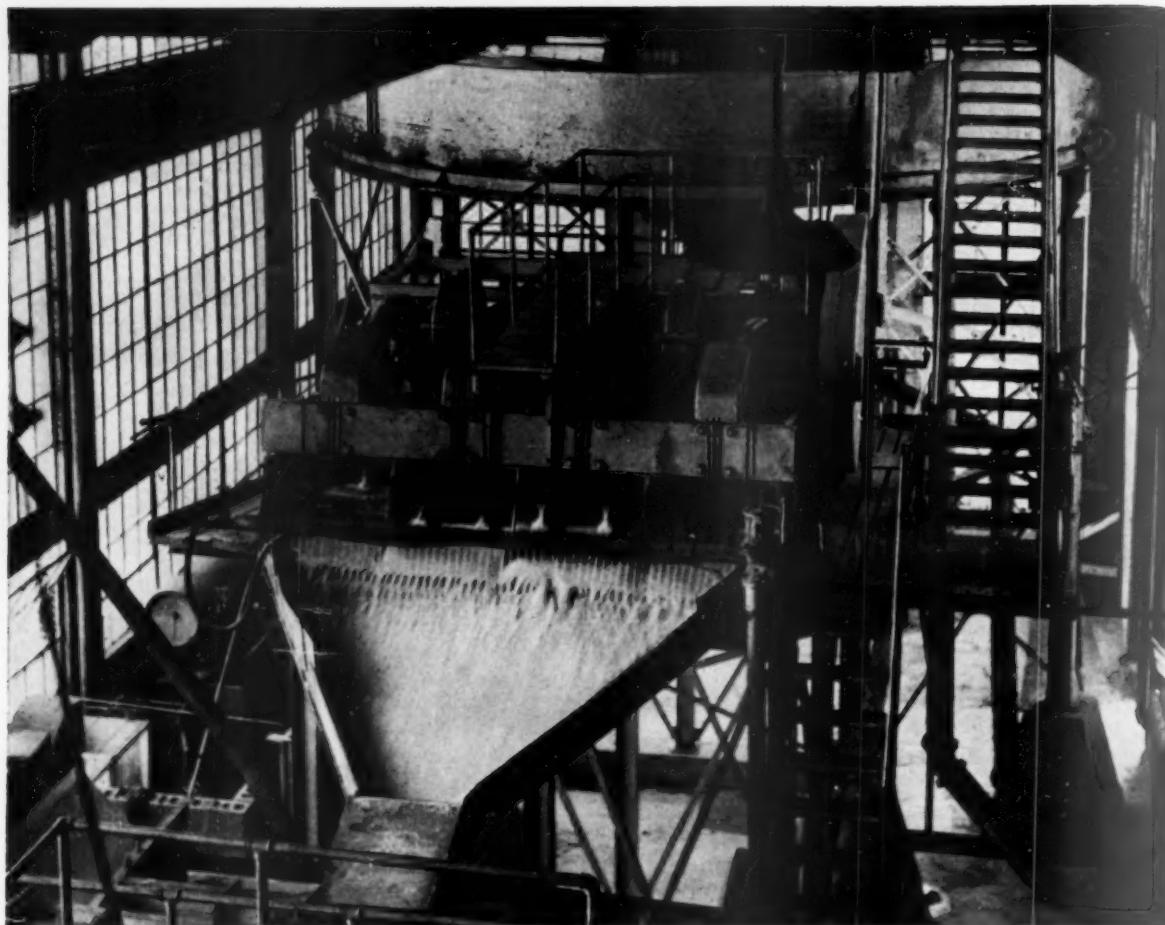
Vibratory Soil
Compactor



Motorized
Head Pulley



Model G-60 - 6000-lb.
Bituminous Mixing Plant



A Dorr Hydrosseparator and two Dorr Classifiers are used by a large Mid-Western sand producer for desliming, scrubbing, washing and dewatering. The Dorr Hydrosseparator and Classifiers are operated in series to produce a high grade commercial minus 28 plus 150 mesh product.

Two additional Dorr Classifiers have recently been installed to meet increased production demands.

No Lost Sand Production Here . . .

Five years of continuous operation . . . no lost production for repairs . . . and hardly a penny spent for routine maintenance.

That's the story on this job. And it is typical of the sand plants, large and small, where Dorr equipment is in operation.

For equipment that will serve you year after year *without high maintenance costs*, it will pay you to get in touch with Dorr. Whatever your production requirements, there is Dorr sand plant equipment scaled to fit your individual requirements. Ask a Dorr Engineer for the facts.



Better tools *TODAY* to meet tomorrow's demand

DORR

WORLD - WIDE RESEARCH • ENGINEERING • EQUIPMENT

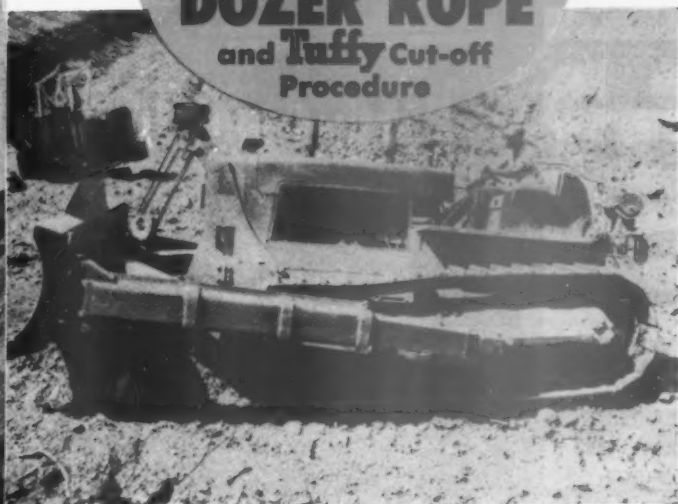
THE DORR COMPANY • ENGINEERS • STAMFORD, CONN.
Offices, Associated Companies or Representatives in principal cities of the world.

Use Dozer Rope You Now Throw Away!



Cut Costs with

Tuffy
DOZER ROPE
and Tuffy Cut-off
Procedure



Specially designed for Dozer Use, Tuffy Dozer Rope has the stamina needed to keep on handling the blade long after ordinary ropes are worn out!

Mounted Back of The Wedge Socket, a 150' reel of $\frac{1}{2}$ " or $\frac{9}{16}$ " Tuffy Dozer Rope can give greatly increased service! Here's how: When rope is cut or crushed on the drum you feed through just enough to replace the damaged part—save the 40' to 50' you now throw away!

In Half The Time normally needed for replacement, your Dozer is back on the job! Remember, you needn't replace the whole rope. Just feed enough from the reel to replace the part that's damaged. Users report down-time reduced considerably when they install Tuffy!

Combine this built-in strength of Tuffy with the savings offered by the Tuffy Reel Mounting and Tuffy Cut-off Procedure and you'll see why more and more construction men are switching to Tuffy! Try Tuffy Dozer Rope—and *save* the difference!



Tuffy **Dragline**

Maximum abrasive resistance, extra flexibility! Rides better on grooves, hugs drum when casting!



Tuffy **Slings**

It's next to impossible to materially damage the 9-part machine-braided wire fabric construction of Tuffy Slings by kinking. For longer service with safety, buy Tuffy.



Tuffy **Hoist Line**

Designed especially for hoist line use on cranes, clamshells and derricks. Flexible and tough.



Tuffy **Scraper Rope**

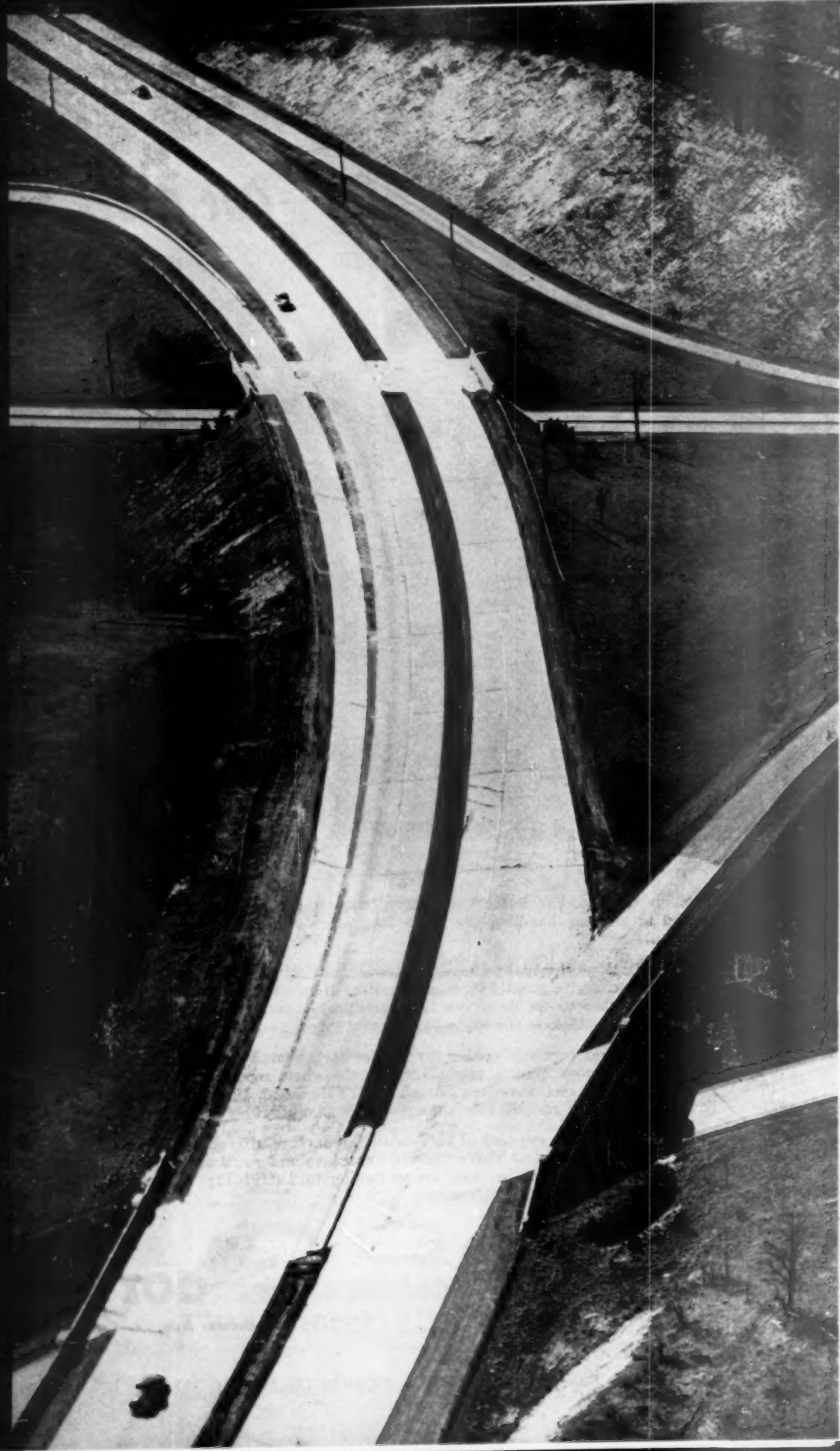
Flexible enough to withstand sharp bends... stiff enough to resist looping and kinking when slack! Moves more yardage.

union  **Wire Rope corporation**

2156 Manchester Ave. • Kansas City 26, Mo.

Specialists in High Carbon Wire, Wire Rope and Braided Wire Fabric

GENERAL REFRACTORIES



A CONCRETE FACT...

RITEX IS RIGHT!

Spinning around the cloverleaf, and spanning the nation with a network of highways, lies concrete. Concrete whose major ingredient is portland cement.

Cement born in rotary kilns. Grefco's patented RITEX chemically bonded (unburned) basic brick has lined the burning zone of more cement kilns than any other brand of basic brick... burned, unburned or chemically bonded.

RITEX pioneered the successful use of basic brick for burning portland cement clinker, dead burned dolomite, and dead burned magnesite.

The cement industry has, down through the years, relied upon Grefco to line kilns, coolers, boilers, stacks and dryers. Just as Grefco products have become favorites in the steel, non-ferrous, glass, paper, power and other industries.

66 Grefco mines and plants—here and overseas—have reliably furnished quality refractories to portland cement plants throughout the world... plants throughout the United States and its possessions, as well as in many foreign countries as far away as Australia and Japan.

Remember this *basic* fact—RITEX is the *right* basic brick for severe burning conditions.

**GENERAL
REFRACTORIES
COMPANY**
PHILADELPHIA



GYROSET VIBRATING SCREENS FOR SIZING — DEWATERING



POSITIVE ECCENTRIC ACTION
POSITIVE STROKE ADJUSTMENT
WITH ONLY 2 BEARINGS

For scalping and for raw material sizing. A rugged two bearing positive eccentric screen. Adjustable as to stroke from 0 to $\frac{3}{8}$ " for efficient economical service.

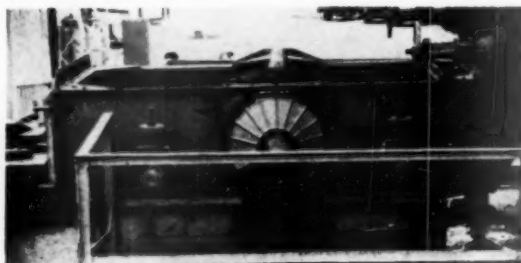
GYROSET Screens have a positive eccentric action giving a full circle throw thruout the length and width of the screen surface. They are two-bearing type providing minimum moving parts to give the required eccentric action.

GYROSET Screens can effectively scalp, size or de-water. Due to the adjustable action, the ability to operate at high speeds, and at any degree of pitch (or slope), GYROSET Screens can be readily adjusted as to action to give maximum volume for rough scalping—or can be adjusted to give the highest possible degree of efficiency in grading or in de-watering—at higher capacity than any other screening unit.

Electrically heated cloth can be supplied for damp operations.

Our "L & L" Cleaner will handle near-size blinding difficulties.

For slurry scalping, or any type washing or de-watering operations. Simple construction yet flexible in action. Size ranges from 18" to 72" in width and 4' to 16' in length—in one to three decks.



Visit BOOTH No. 6 at National Sand & Gravel and National Crushed Stone Shows.

PRODUCTIVE EQUIPMENT CORP.

2926-28 W. LAKE ST.

CHICAGO 12, ILL.

READILY ACCESSIBLE FOR SERVICE



- ALL MAINTENANCE POINTS ARE EASY TO REACH.
- CAN BE TAKEN DOWN AND RETURNED TO SERVICE IN LESS THAN A HALF HOUR.
- MANY PARTS INTERCHANGEABLE BETWEEN DIFFERENT PUMP SIZES.

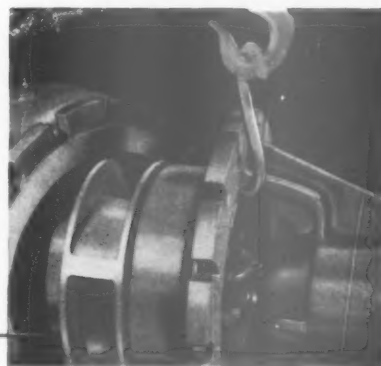
ALLIS-CHALMERS
**Solids Handling
PUMP**

Here's How Easy Service Is



Disconnect drive, loosen casing bolts and lift bolt assembly from slots. Bolt, nut and washers are still connected for easy reassembly.

Swing out rotating element. Neither suction or discharge piping is disturbed. All wearing parts are fully accessible for inspection or service.



FOR HELP ON YOUR SOLIDS HANDLING PROBLEMS, call your nearest Allis-Chalmers District Office. For more information, write Allis-Chalmers, Milwaukee 1, Wisconsin for Bulletin 52B6381.

ALLIS-CHALMERS

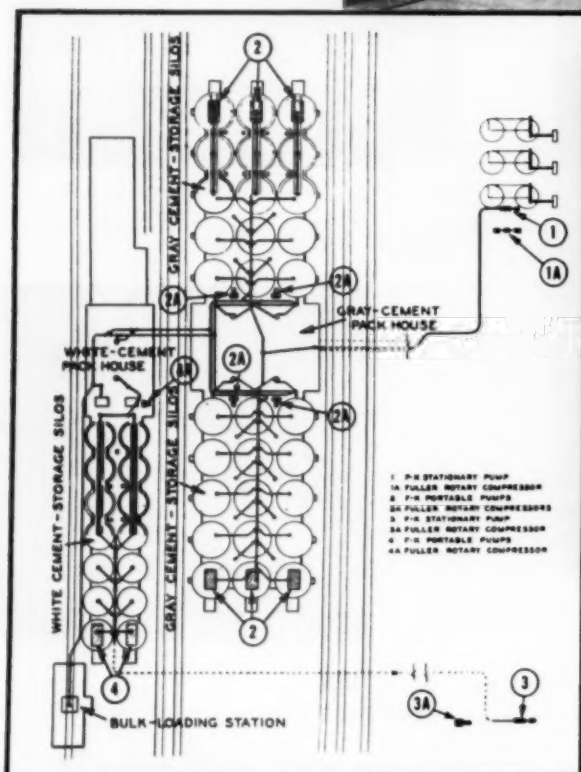
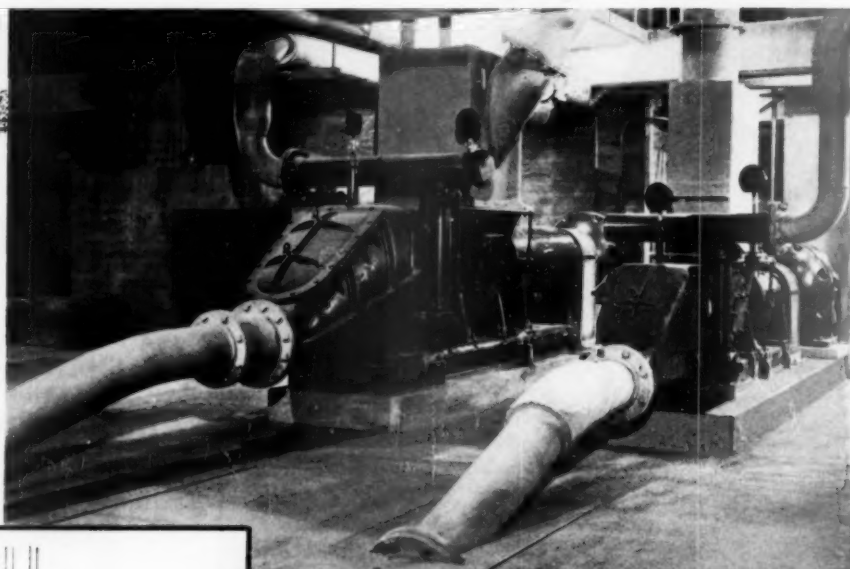


A-4225

Conveying Cement in Bulk

for the producer

Two Fuller-Kinyon Pumps in a Southern cement plant. One conveys raw materials to storage; the other finished cement to storage.



A typical, modern cement plant using Fuller-Kinyon Pumps for conveying finished cement to storage, from storage to packer bins, and loading.

During the past 27 years, Fuller Company has worked very closely with the cement industry. Much of its research, manufacturing, and service has been directed toward the industry, not only from the standpoint of better production in the cement plant, but also in the more efficient handling of the finished product by the user in ready-mixed and concrete-block plants, and on large construction jobs.

The Company aims to anticipate the needs of the industry—to design and build better equipment that will perform more efficiently, at the lowest possible operating cost, to better working conditions.

This policy has had its reward the



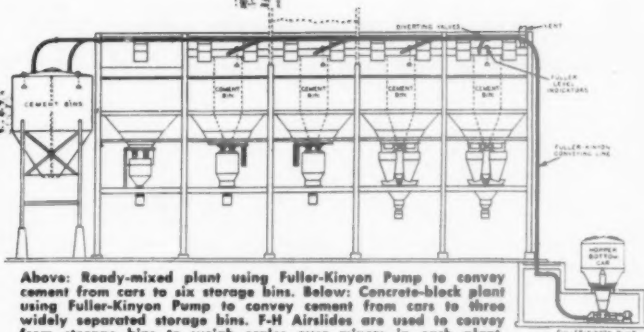
F-H Airslide conveying cement raw materials from bin to elevator, for kiln feed.

• DRY MATERIAL CONVEYING SYSTEMS AND COOLERS . . . COMPRESSORS AND VACUUM PUMPS . . . FEEDERS AND ASSOCIATED EQUIPMENT

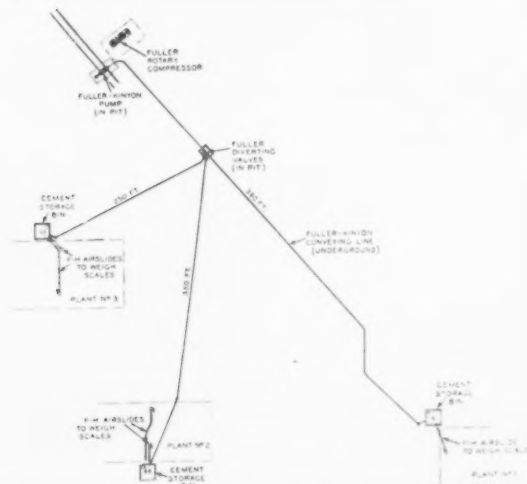
...for the processor



Fuller-Kinyon Pump in pit underneath railroad track, conveying cement to storage in a ready-mixed plant.



Above: Ready-mixed plant using Fuller-Kinyon Pump to convey cement from cars to six storage bins. Below: Concrete-block plant using Fuller-Kinyon Pump to convey cement from cars to three widely separated storage bins. F-H Airlides are used to convey from storage bins to weigh scales over mixers in each plant.

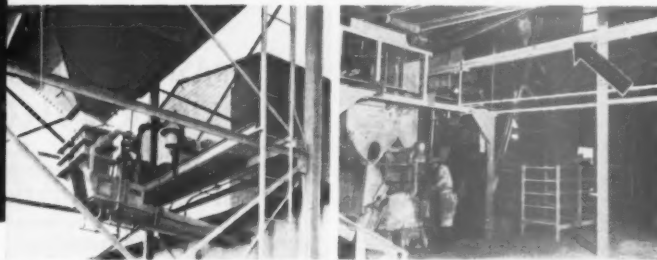


industry, as a whole, has taken full advantage of it. Practically every cement plant in the United States, and many in foreign countries, uses Fuller equipment wherever possible. Likewise in the plants manufacturing cement products, you will find Fuller equipment unloading and in-plant handling of cement and other ingredients used in producing the finished product. A large majority of the large dams built during the past few years used Fuller equipment for unloading and conveying Portland cement.

We shall be glad to send you literature covering any of the equipment shown here. Write today.



Fuller-Kinyon Unloader unloading cement from box car.



Two Airlides conveying from storage bins. Airlide delivering to weigh scale over to weigh scales in plants No. 2 and No. 3. mixer in plant No. 2.

Fuller

FULLER COMPANY Catasauqua, Pa.

C-87T-2188

BRANCH OFFICES: CHICAGO

• SAN FRANCISCO

• LOS ANGELES

• SEATTLE

• BIRMINGHAM

ROCK PRODUCTS, January, 1954

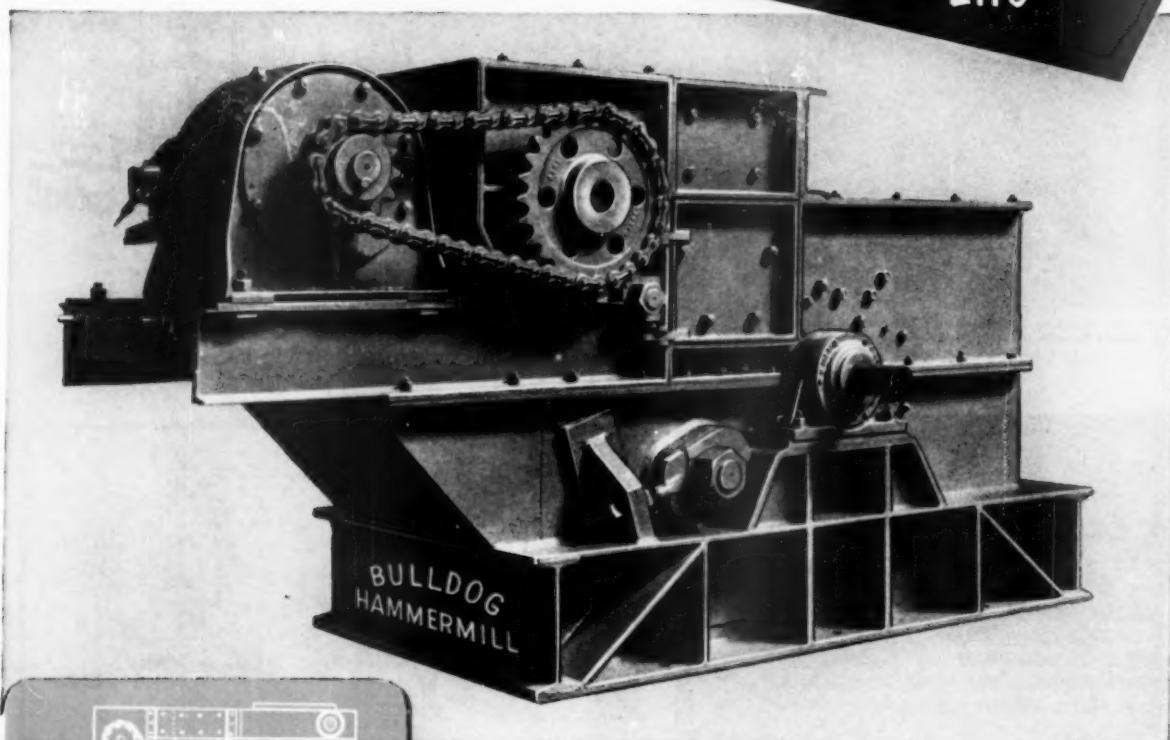
27



BULLDOG HAMMERMILLS

Assure Cement Plants.....

Twice the Capacity
with 15 Times
Longer Hammer
Life*



**Exclusive Traveling
Breaker Plate Conveys
Moist and Sticky
Material to Hammers
Without Clogging
1 to 1000 Tons Capacity**

***ASK FOR PROOF OF MONEY-SAVING USES FOR PRIMARY, SECONDARY AND FINE REDUCTION**

No hammermill offers as much production and operating efficiency as the BULLDOG! That's why operators who have checked them all know the BULLDOG'S exclusive non-clog feature of the Moving Breaker Plate reduces slow-downs and costly maintenance for high moisture materials. The Stationary Breaker Plate has no equal for dry materials. The BULLDOG Hammermill has the greatest hammer life of any hammermill. Write for Bulletin A today.

HAMMERMILLS, INC.

4700 WEST DIVISION STREET
CHICAGO 51, ILL. • SPaulding 2-9300

Subsidiary of **PETTIBONE** MULLIKEN
CORP.



Right from every angle to bear heavier loads with less maintenance

The basic precision principle of right-angle design is translated by Rollway into a bearing that rotates with least friction under practically all heavy-load conditions.

Precisely-made ends, rollers and slots afford little opportunity for sliding friction, side-shock, end-rub or skew to cause premature failure.

Straight solid-cylindrical rollers provide the long line-

contact necessary to support heavy loads. The use of special alloys restricts spalling or indentation of the race.

The net result is a bearing that stands up—longer—with far less maintenance and replacement.

In the heavy-duty equipment field, Rollway Bearings are recognized for their long, trouble-free service life. Whether you're a maker or a user, you'll "roll right with Rollway." Rollway Bearing Co., Inc., Syracuse, N. Y.

Write or call your nearest Rollway office:

Boston	Chicago	Los Angeles
Detroit	Houston	Pittsburgh
Milwaukee	Philadelphia	San Francisco
Syracuse	Toronto	Seattle
	Cleveland	

Rollway Bearing replacements are available through authorized bearing distributors in principal cities. Consult your classified 'phone directory.

ROLLWAY

BEARINGS

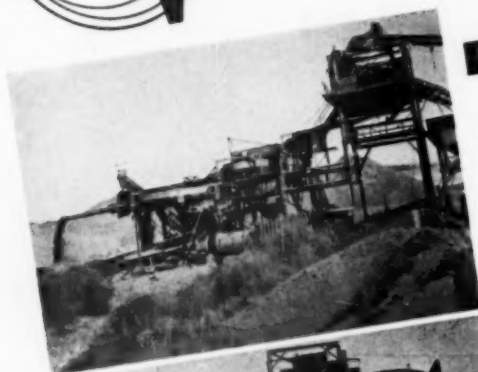
Complete Line of Radial and Thrust Cylindrical Roller Bearings

**A World-wide Record of Meeting Exacting Specifications
under a Variety of Local Conditions, with . . .**



CLASSIFIERS

**...the VERSATILE CLASSIFIERS
that Meet ALL CHALLENGES!**



NORTH DAKOTA

On the Garrison Dam project, the processing equipment included three AUTO-VORTEX CLASSIFIERS . . . which, by effectively eliminating the bulge of middle size sand and recovering the maximum of minus 200 mesh sand, delivered over 200,000 yards of Corps of Engineers specification material without rejection.



NEW YORK

In this New York 1000 T.P.H. Sand and Gravel Plant, waste sands were rapidly filling their settling ponds. An installation of two 25' AUTO-VORTEX BOWL CLASSIFIERS recovered this waste material down to 200 mesh in a valuable product.



FLORIDA

At this Florida Plant, where a simple 50 mesh split was desired, AUTO-VORTEX CLASSIFIERS simultaneously recovered more plus 50 mesh and eliminated more minus 50 than any machine used previously. It illustrates economy of construction, direct car loading, and operation without power.

See our Working Models at the National Sand & Gravel Association Convention in Chicago, February 15th to 19th!

Yes, AUTO-VORTEX Plants in the United States and in many foreign countries have set performance records that cover any classification from 12 to 200 mesh, while establishing new efficiency standards in blending and hump elimination. They also offer a simple, inexpensive installation for recovery of large tonnage in a single classification.

A CHARLES E. WOOD COMPANY representative will be happy to discuss with you your special requirements . . . whether they call for the simplest one-classification plant or a more complicated system. Write for our brochure on Cone and Bowl Type AUTO-VORTEX CLASSIFIERS!



CHARLES E. WOOD COMPANY

906 NORTH WATER ST. • MILWAUKEE 2, WISCONSIN

Greater Production... with "ALL AMERICAN" the new

DIAMOND

portable crushing
and
screening plant

"77"

REPORTED
FIELD PRODUCTION:
450 TONS PER HOUR*
OF 3/4" AGGREGATE!

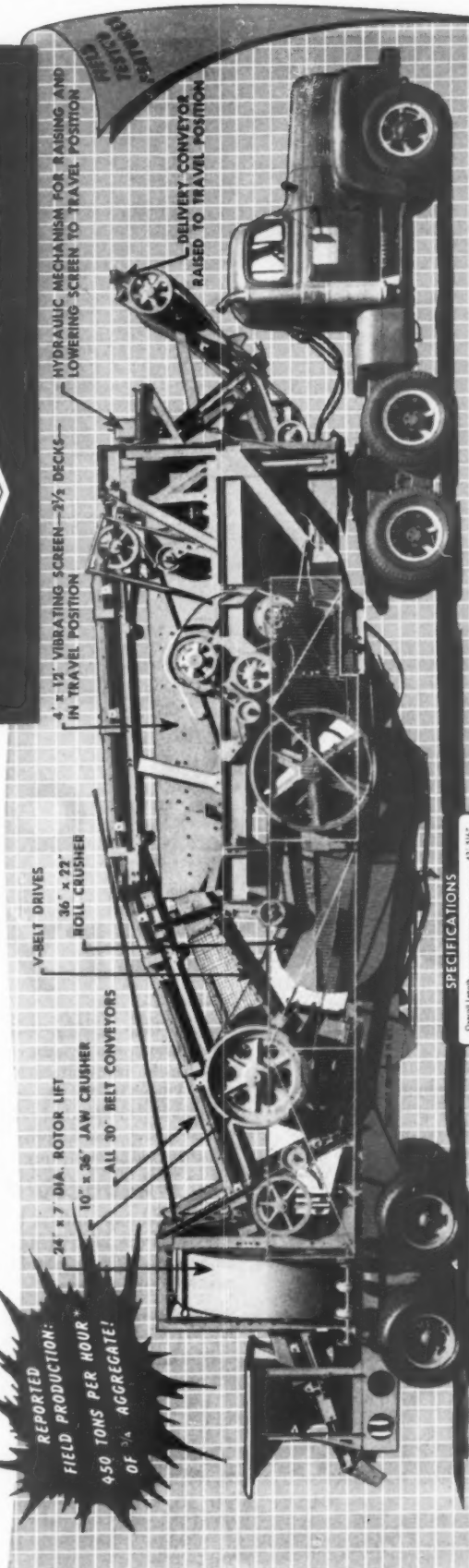
24" x 7" DIA. ROTOR LIFT
10" x 36" JAW CRUSHER
ALL 30" BELT CONVEYORS

V-BELT DRIVES
36" x 22"
ROLL CRUSHER

4' x 12" VIBRATING SCREEN—2 1/2 DECKS—
IN TRAVEL POSITION

HYDRAULIC MECHANISM FOR RAISING AND
LOWERING SCREEN TO TRAVEL POSITION

DELIVERY CONVEYOR
RAISED TO TRAVEL POSITION



SPECIFICATIONS

Overall Length	43' 2 1/2"
Overall Width	9' 0"
Overall Height (Operating)	15' 3 1/2"
Weight (Operating)	13,000 lbs.
Weight (Shipping)	14,000 lbs.
HP Required (See Level)	130-160 H.P.
Number Of Front Wheels	2-11" With Traction Duty
Number Of Rear Wheels	2-11" With Traction Duty
Drive Shafts	4 Dual Shafts—8 1/2" x 20"—12 Ft. Total
Roll Crushers	1-10" x 36" (Roller Bearing)
Vibrating Screen (See Level)	4' x 12'—2 1/2 Decks
Roller Lift Drive	24" x 7" Dia.
Screen Lowering Mechanism	Hydraulically Operated
Delivery Conveyor	36" x 22" (Roller Bearing)
Capacity	450 Tons Per Hour (See Level of Feed) * 25% Based on 1 1/2" Open Top Feeding (See Level of Feed)

OPTIONAL EQUIPMENT

1. Single or Double Auto Feed Duty
2. Solid Receiver
3. Solid Receiver
4. Hydraulic As an Option—Replaces the Two Rear Shafts
5. Solid Combined Taper Feed Conveyor
6. Top Loading Hopper with Feeder and Grizzly

"We're Sold On The '77'"

Northwest Sand & Gravel Co. of Virginia, Minn., reports production of 250 tons per hour of 3/4" minus aggregate in 55' crush of extremely hard rock.

"Worth Waiting For!" Says Howard Ganley!

Howard Ganley Inc., General Contractors, is producing 400 tons per hour of aggregate from a pit containing 25% to 55% material to be crushed!

* LaVoy & Scheller of Fargo, North Dakota, is producing up to 450 tons per hour of 3/4" minus aggregate in 25-55% crush.

DIAMOND'S ANSWER TO INDUSTRY'S CHALLENGE!

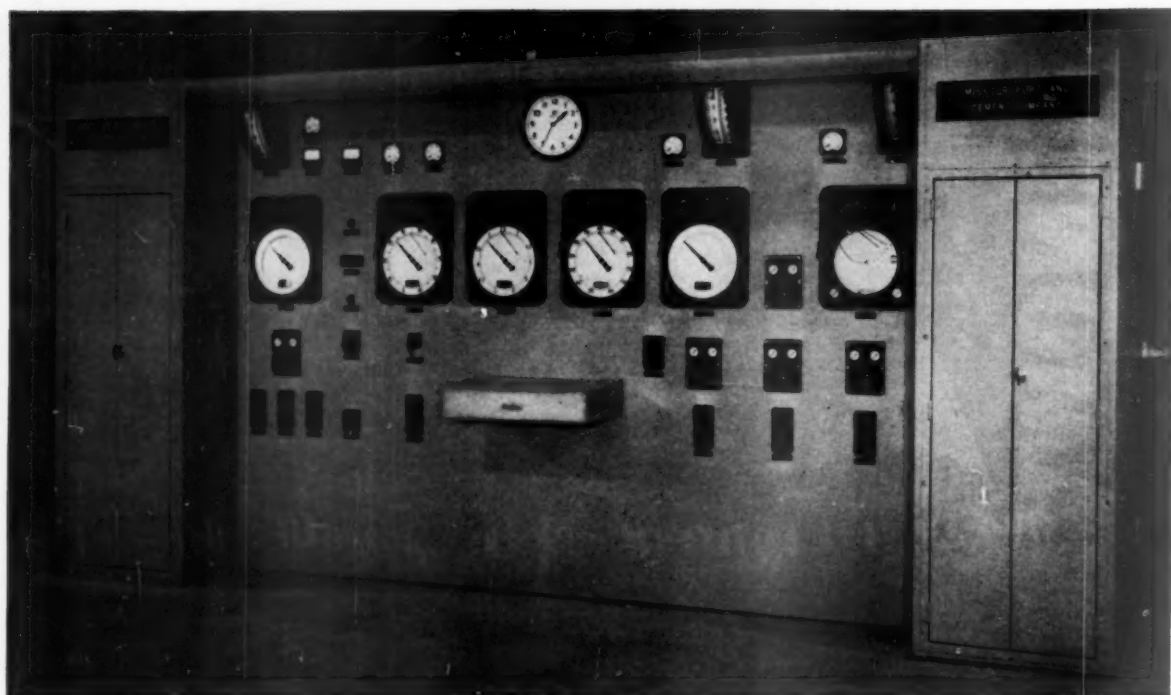
The industry said it couldn't be done! They challenged Diamond to produce a portable crushing and screening plant that could out-produce anything capable of crushing and traveling on America's highways. Diamond has met their challenge with the new "77"—the only portable plant offering you so many outstanding features. It's truly an American!

DIAMOND IRON WORKS, CO.

1710 N. 2nd Street, Minneapolis 11, Minn.

Please send me complete details on the new "All American" "77" Diamond Portable Crushing and Screening Plant.

Name _____ Title _____
Company _____
Address _____
City _____ State _____



Main Panel Board for control of 3000 bbl per day Kiln
at Missouri Portland Cement Company, St. Louis, Missouri.

*3 Ways
Better*

...Bailey Control for Rotary Kilns

Bailey Control for Rotary Kilns gives you better performance three ways:

1. Economical Operation
2. Uniform Quality of Product
3. Reduced Maintenance

These are advantages which can be achieved when all phases of kiln operation are coordinated to work together as a team. Here's how Bailey Kiln Control can help you get all three.

ECONOMICAL OPERATION

With Bailey Combustion Control you can be certain that you are getting maximum product for every unit of fuel you burn. Bailey Control closely guards the Fuel-Air Ratio, Hood Draft, Fuel Feed, Clinker Cooling and the Temperature of Air for Combustion.

UNIFORM QUALITY OF PRODUCT

Bailey Instruments and Controls can help you achieve a

uniform high grade product. Measurements of temperatures, kiln speed, combustibles content, and oxygen content can be transmitted to recorders on centrally located control boards like the one shown. There is no sacrifice of accuracy or speed of response. High temperature alarm contacts may also be provided with Bailey Pyrometers as a further aid in achieving optimum uniformity of product.

REDUCED MAINTENANCE

By maintaining uniform temperatures and excess air conditions in the kiln, Bailey Controls help to reduce to a minimum costly refractory repairs and wear and tear on auxiliary equipment.

Bailey Meter Company has a staff of engineers who are experts in the control of rotary kilns. Assure yourself of optimum kiln performance. Let one of these men help plan your Kiln Control System.

P-22

BAILEY METER COMPANY

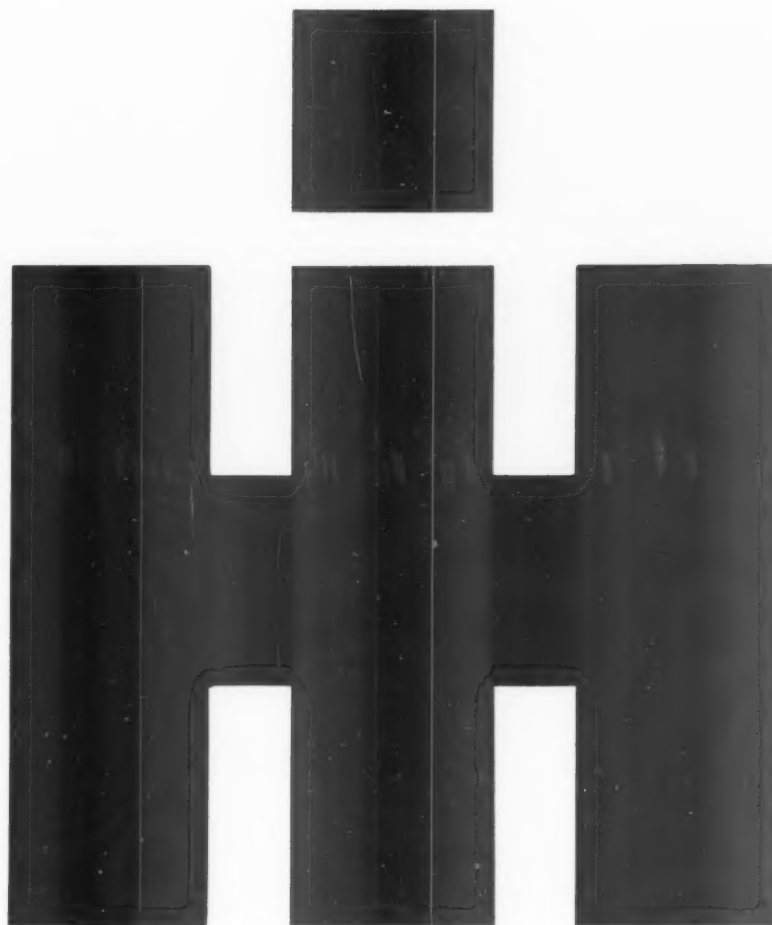
1039 IVANHOE ROAD

CLEVELAND 10, OHIO

Controls for Processing

TEMPERATURE
PRESSURE
% OXYGEN
% COMBUSTION

FLOW
LEVEL
DENSITY
RATIO



International Harvester and INTERNATIONAL Industrial Distributors present a complete line of modern earthmoving equipment, led by the INTERNATIONAL two-wheel, rubber-tired tractors with scrapers, and by "Big Red," the INTERNATIONAL TD-24, world's most powerful crawler



INTERNATIONAL

POWER TO MOVE THE EARTH

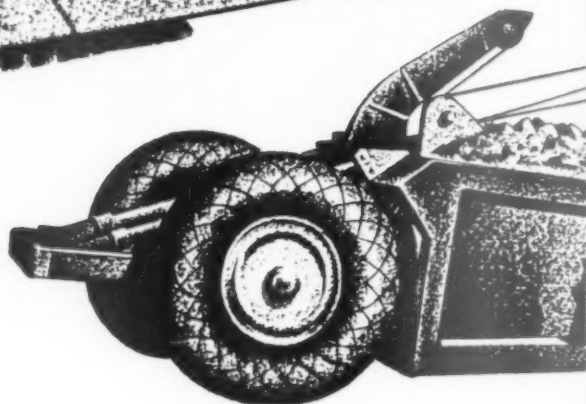
Two sizes of two-wheel,
rubber-tired tractors and scrapers

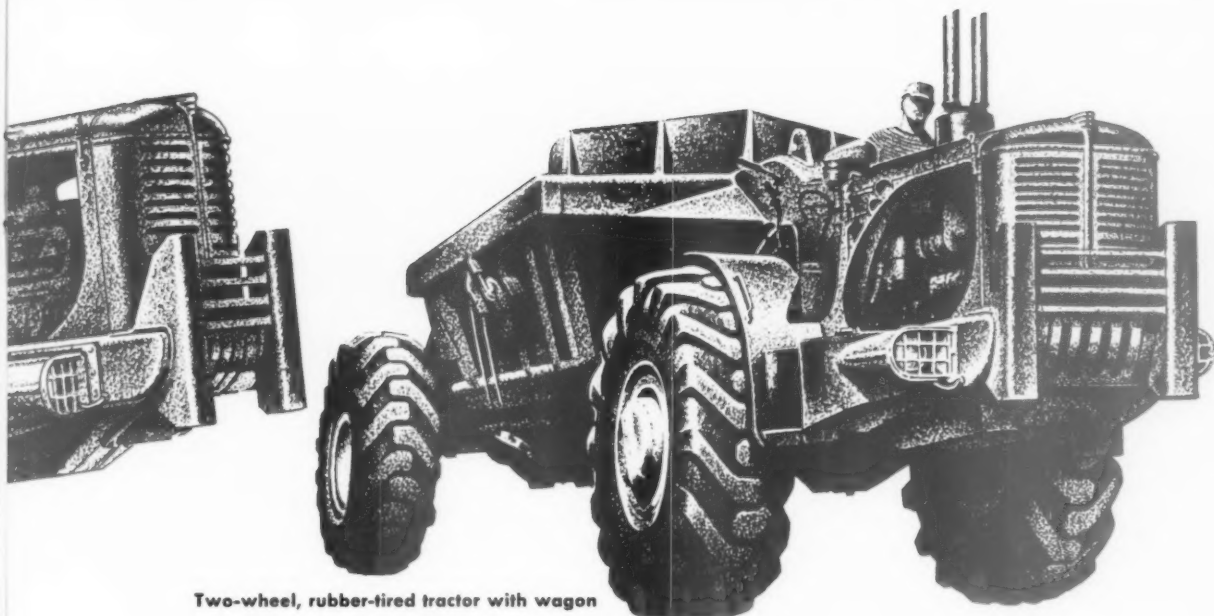


**Now a complete earthmoving line
that comes in the**



TD-24 with tilting bulldozer





Two-wheel, rubber-tired tractor with wagon

Big Red Package

Got a big job to do? Call on INTERNATIONAL'S new Big Red Team!

- Seven rugged crawlers headed by the TD-24—most powerful crawler on the market!
- Twenty-two matching hydraulic and cable-controlled bulldozers and bullgraders, with land-clearing blades available!
- Four 4-wheeled scrapers!
- Two high-speed, two-wheel, rubber-tired tractors with scrapers (13 and 18 heaped-yard capacity)!
- A high-speed, two-wheel, rubber-tired tractor with bottom dump wagon (20 heaped-yard capacity)!

These great machines, now grouped under the INTERNATIONAL banner, have proved their dependability and economy to contractors for years on big projects around the world.

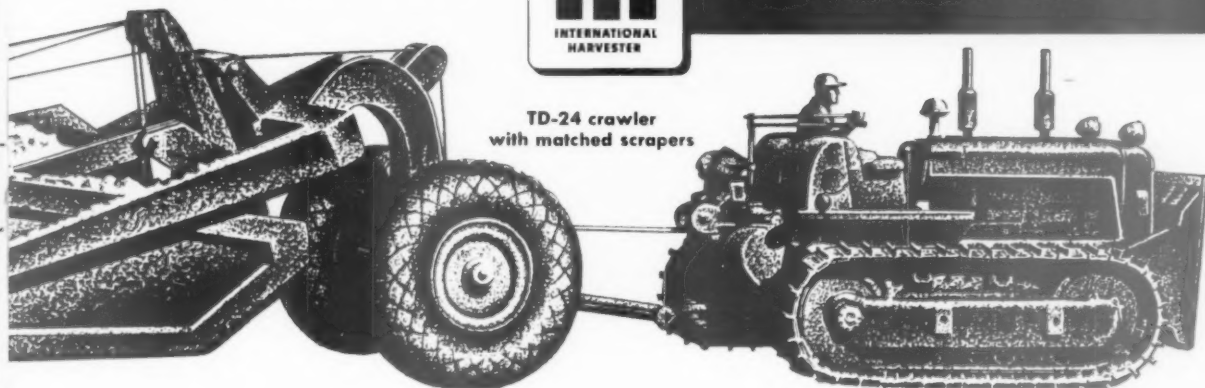
Your INTERNATIONAL Industrial Distributor has the equipment that will help you make a profit on any job you tackle. Call him for full details . . . or for actual demonstrations. See for yourself!

POWER THAT PAYS



INTERNATIONAL

TD-24 crawler
with matched scrapers



Now All in One Family

the hardest-working work teams in the world!

The new INTERNATIONAL team stars not only a full line of rugged red INTERNATIONAL crawlers, complete with INTERNATIONAL scrapers and bulldozers, but also high-speed INTERNATIONAL two-wheel, rubber-tired tractors with scrapers.

This means that now, more than ever, your INTERNATIONAL Industrial Distributor is

"Earthmoving Headquarters" for your area. He offers you IH equipment to tackle any job, backed up by unsurpassed service facilities and parts supplies.

He's at your call, always, to help keep your equipment rolling . . . to cut down your downtime and pile up your profit-time . . . to serve you with INTERNATIONAL "Power that Pays!"

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS



INTERNATIONAL

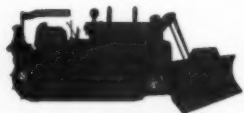
POWER THAT PAYS



TD-24 crawler with matched scrapers



TD-18A crawler with matched scrapers



TD-24 crawler with bulldozer



TD-14A crawler with cable bulldozer



TD-9 crawler with hydraulic bulldozer



T-9 crawler with hydraulic bulldozer



TD-6 crawler with hydraulic bulldozer



T-6 crawler with hydraulic bulldozer



Model 2T-75 two-wheel, rubber-tired tractor with 18 heaped-yard capacity scraper



Model 2T-75 two-wheel, rubber-tired tractor with 20 heaped-yard capacity bottom dump wagon



Model 2T-55 two-wheel, rubber-tired tractor with 13 heaped-yard capacity scraper

selected FOR COST-SAVING performance

B&W Alloy Nose-Ring Castings installed over a 12-year period now total 198 sets, or more than 7600 pieces. Leading companies listed at the right use these castings on rotary kilns.

Since B&W research and engineering developed these lighter, stronger, more functional castings their outstanding record of performance has completely confirmed their "cast-to-last" reputation. A service life spanning ten years is not unusual, effectively demonstrating the ability of B&W nose-ring castings to outlast conventional high-alloy types by a wide margin.

If your company's name is not on the accompanying list, it will pay you—in initial and long-term savings—to put it there. Write: The Babcock & Wilcox Company, 161 East 42nd Street, New York 17, N. Y.



Aetna Portland Cement Co.
Allentown Portland Cement Co.
Alpha Portland Cement Co.
J. E. Baker Co.
Basic Refractories, Inc.
Bessemer Limestone & Cement Co.
The Dolite Company
Faote Mineral Co.
Gibsonburg Lime Products Co.
Hercules Cement Corp.
Huron Portland Cement Co.
Kelley Island Lime & Transport Co.
Keystone Portland Cement Co.
Lawrence Portland Cement Co.
Lone Star Cement Corp.
Minnesota Mining & Manufacturing Co.
Nazareth Cement Co.
North American Cement Co.
Peerless Cement Corp.
Penn-Dixie Cement Corp.
Pittsburgh Coke & Chemical Company
Pittsburgh Plate Glass Company
Columbia Cement Division
Universal Atlas Cement Company
Valley Forge Cement Company
Volunteer Portland Cement
Whitehall Cement Manufacturing Co.



S-410

WHERE EXPLOSIVES RESEARCH PAYS OFF



To blast 305,000,000 tons of stone and non-metal materials for America's ever-growing construction, road building, and steel industries requires more than 166,000,000 pounds of dynamite annually. Here, as illustrated above, is where explosives research pays off. Note the excellent fragmentation which minimizes secondary blasting . . . the low stone pile which increases and speeds up the production of the shovels.

Such results come not only from specially devel-

oped explosives and blasting supplies, but also by using the most modern blasting methods. Hercules' continuous research and extensive knowledge of field conditions are important to economical and efficient blasting in quarrying, coal mining, metal mining, and construction.

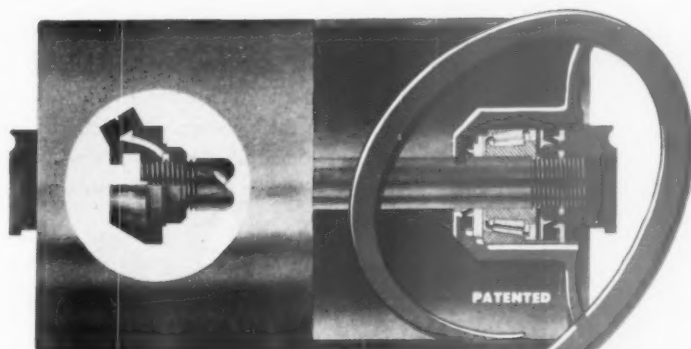
HERCULES POWDER COMPANY

INCORPORATED
Explosives Department, 946 King St., Wilmington 99, Del.
Birmingham, Ala.; Chicago, Ill.; Duluth, Minn.; Hazleton, Pa.;
Joplin, Mo.; Los Angeles, Cal.; New York, N. Y.; Pittsburgh, Pa.;
Salt Lake City, Utah; San Francisco, Cal.

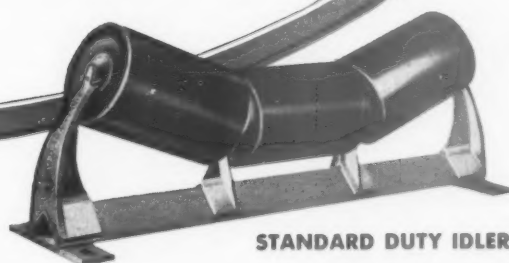
UST* Continental Idlers

* UNIT-SEALED PRE-LUBRICATED TIMKEN BEARINGS

Saves Grease!
Saves Labor!
Saves Belts!



CGC UNIT-SEALED
CGC PRE-LUBRICATED
CGC TIMKEN BEARINGS



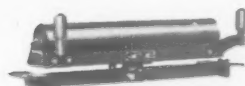
STANDARD DUTY IDLER

Continental's Unit-Sealed "UST" Conveyor Idlers, incorporating Timken Bearings, Garlock Klosures, are the answer to the operator's prayer.

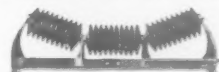
The Unit Bearing Assemblies—"sealed unto themselves" provide an ample but not excessive grease reservoir. This represents a saving of grease and further eliminates any possible migration of the grease from upper to lower bearings on inclined rolls. The lubricant is a top quality water repellent grease of a stable consistency with a wide temperature range for long life.

Most important—this construction permits operating the Continental "UST" Idler without relubrication for 1-2-3 years depending upon the severity or character of conditions.

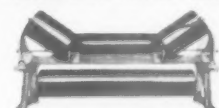
For detailed information on these idlers write
for Bulletin R.P.-116



SELF-ALIGNING FLAT BELT IDLER



RUBBER DISC IMPACT IDLER



GRAIN CONCENTRATION IDLER



SELF-ALIGNING TROUGHING IDLER

Long Life- THE ULTIMATE IN MINIMUM MAINTENANCE

CG-5209

INDUSTRIAL DIVISION
CONTINENTAL GIN COMPANY

BIRMINGHAM, ALABAMA

ENGINEERS



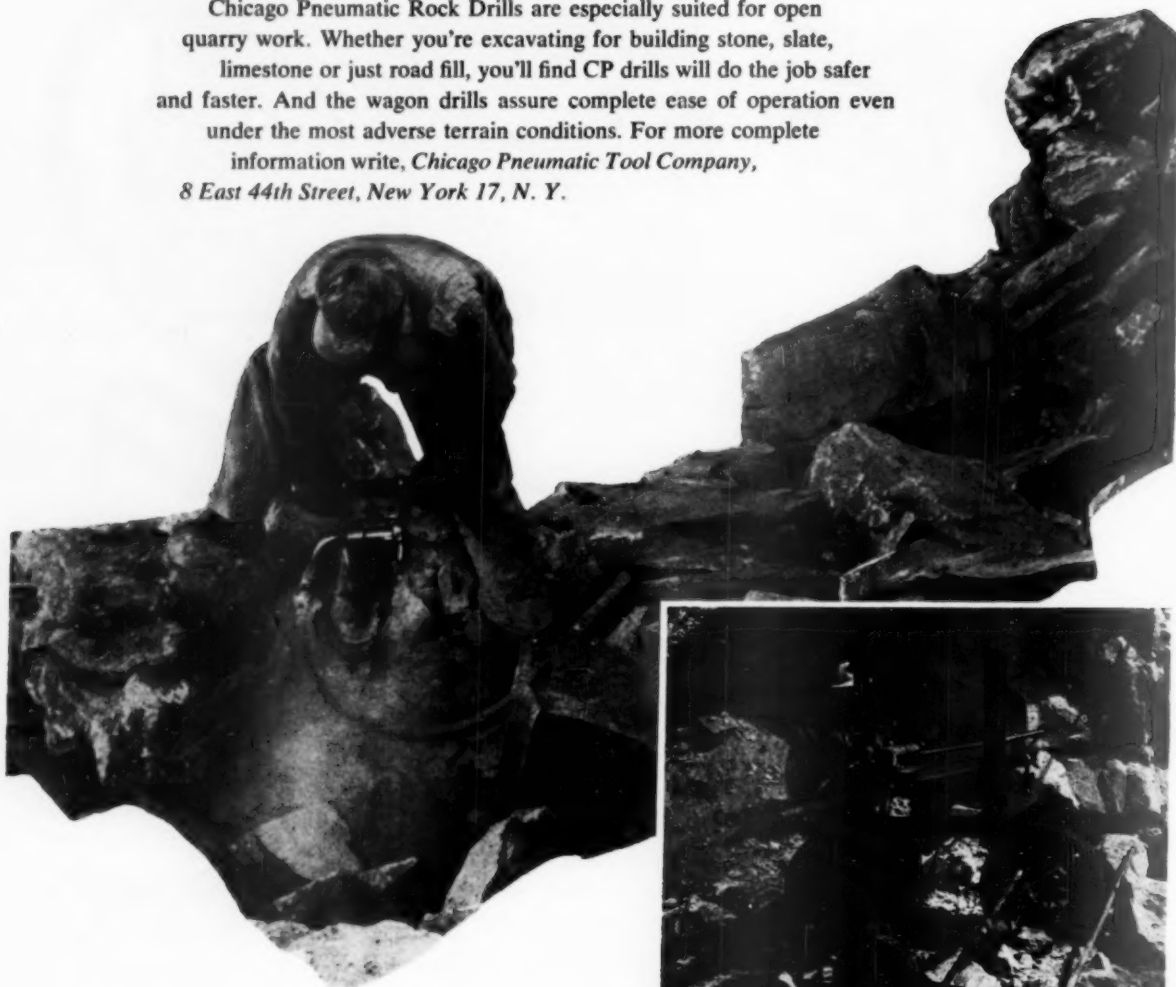
ATLANTA • DALLAS • MEMPHIS • NEW YORK



MANUFACTURERS

turning rock into rubble!

Chicago Pneumatic Rock Drills are especially suited for open quarry work. Whether you're excavating for building stone, slate, limestone or just road fill, you'll find CP drills will do the job safer and faster. And the wagon drills assure complete ease of operation even under the most adverse terrain conditions. For more complete information write, *Chicago Pneumatic Tool Company, 8 East 44th Street, New York 17, N. Y.*



CP Sinker Drills — The complete line ranges from the lightweight CP-22 (28 lb.) to the extra heavy duty CP-50N (102 lb.). They're designed for continuous hard service — are ideal for short blast hole drilling. Fully cushioned for low maintenance, there's a CP Sinker Drill for every type of wet or dry drilling.



Chicago Pneumatic

8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES • ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES



G-300 Wagon Drill — Affords fast, accurate drilling from any angle. Tubular chassis and drill carriage assure maximum stability and strength with no added weight. Takes complete advantage of the high drilling speed and rotation of the 4-inch CP-70-NDC Drifter. And the G-150 light Wagon Drill for drilling holes to 20 feet provides a lighter, even more maneuverable unit when combined with heavy sinkers and light weight drifters.



LAY-SET *Preformed* WIRE ROPE

SPECIFY... HAZARD
...the *GREEN*
Strand Brand

Here's something your best friend will tell you—
that he gets better service from
HAZARD " " Wire Rope

There's a Mighty Good Reason!

● Sure, HAZARD is made to standard specifications but there is one thing that tells you the moment you look at it that it's the best wire rope made—and that's the **GREEN STRAND**.

It will cost you more in the long run if you just order wire rope—where you can get it the cheapest. Just like anything else, the experience and integrity of the manufacturer are the real reason why you get longer service and better value from HAZARD Green Strand.

HAZARD Green Strand is made from the best materials, with precision, by oldtimers in the wire rope business. Then only certain construc-

tions, carefully checked in use, are recommended for specific jobs you do. It's this combination of quality wire rope and correct recommendations that saves you money on all your wire rope purchases.

● Don't just ask for wire rope—specify, and *get*, HAZARD Green Strand Preformed Wire Rope. See your local HAZARD distributor or write our Wilkes-Barre office today for recommendations covering the equipment you operate.

ACCO

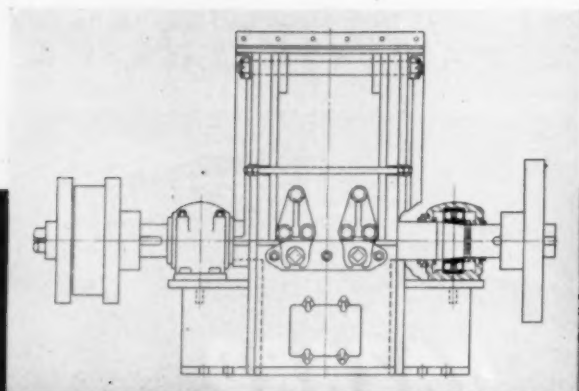


**HAZARD WIRE ROPE DIVISION
AMERICAN CHAIN & CABLE**

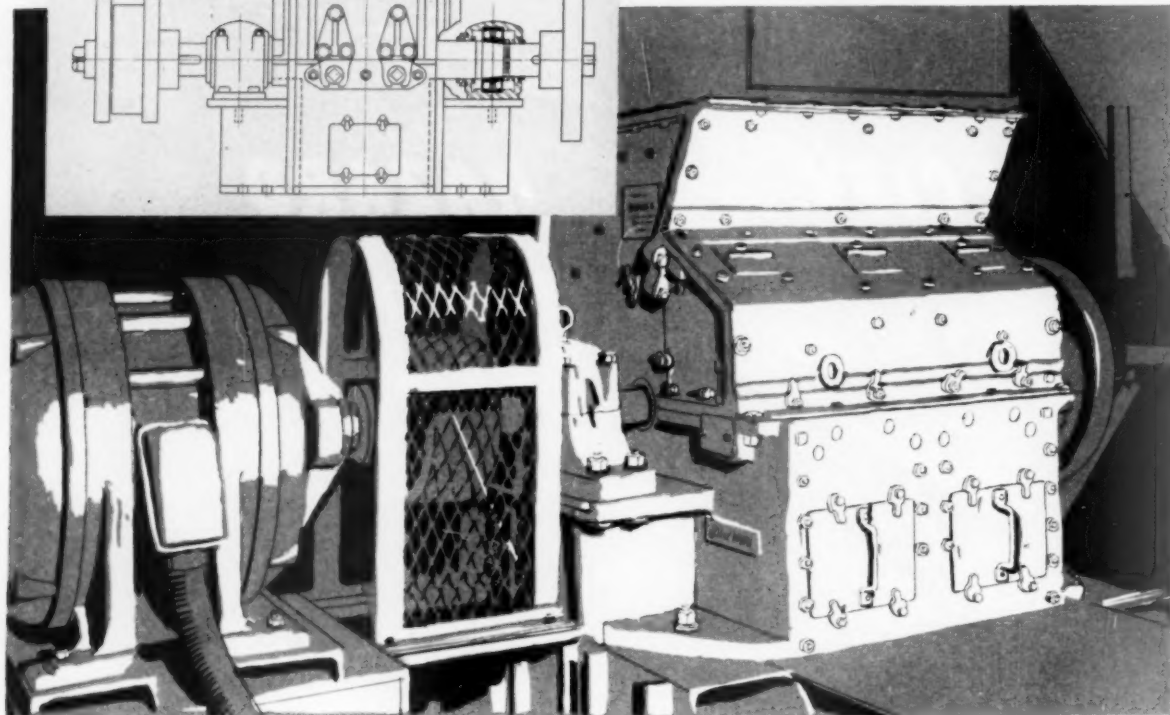
Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles, New York, Odessa, Tex.
Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

makers of
ACCO
Registered
WIRE ROPE
SLINGS

TORRINGTON BEARINGS AT WORK



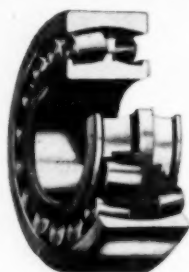
For long life and smooth operation under severest conditions, Jeffrey Manufacturing Company specifies precision-ground, self-aligning **TORRINGTON Spherical Roller Bearings** for the main shaft of its Type-B Swing Hammer Pulverizers.



With life

Rock-processing applications are among the world's toughest tests of true bearing quality. **TORRINGTON Spherical Roller Bearings** pass those tests with life to spare. Here's why:

TORRINGTON Spherical Roller Bearings are built from special electric-furnace alloy steels. They're carefully heat treated by the most advanced methods. They're precision ground to high surface finish and accurate conformity between races and rollers. Each path of rollers has a *one piece* solid bronze cage, assuring freedom of operation.



to spare

Integral flange on inner race gives radial stability and positioning for thrust loads—both essential to satisfactory performance.

Put these cost-cutting features into your own rock-processing equipment. Specify **TORRINGTON Spherical Roller Bearings**—and see for yourself why it pays.

THE TORRINGTON COMPANY

South Bend 21, Ind.

Torrington, Conn.

TORRINGTON *SPHERICAL ROLLER* **BEARINGS**

Spherical Roller • Tapered Roller • Cylindrical Roller • Needle • Ball • Needle Rollers

FOR LONGER BELT LIFE,

INCREASED TONNAGE

Get a grip on slippery loads with **AMERICAN LIGHTNING** Ribbed Conveyor Belts

You save two ways when you use this belt with the raised treads that grip and hold slippery materials, wet or dry, round, flat or jagged.

1. **FAR LONGER BELT LIFE** because ribbed center halts costly abrasion due to slipping, sliding materials. Even after ribs wear off, you still have all the life of regular flat belt.

2. **INCREASED TONNAGE** because slippage is eliminated and higher belt speeds are possible without excessive cover wear.

THESE MULTI-MILLION-YARD JOBS PROVE IT!

19,968,875 cu. yds.

"... the 333' x 42" 7-ply ribbed belt handled 19,968,875 cu. yards, installed on a stacker, operating at an angle of 21 degrees."

12,977,563 cu. yds.

"... the 7-ply, 212' x 36" ribbed belt you furnished us has been in actual service 32,301 hours and handled 12,977,563 cu. yards."

Over 14,000,000 cu. yds.

"Figures show one dredge dug over 14,000,000 cu. yards of material during the life of the belt. Material runs from sand up to 12" rocks, both round and irregular."

(Names of above firms on request)

Ribbed type belts were originated and patented by **AMERICAN** in 1907, and have been constantly improved by us.

START SAVING NOW ... write today for complete details. Quotations supplied promptly on receipt of installation requirements; phone or write our nearest office **TODAY**.



Typical **LIGHTNING** ribbed center belt installation on steeply-inclined dredge stacker. Insert photo shows molded ribs which grip and hold material.



AR-27.

Factory & General Offices: • 1145 Park Avenue • Oakland 8, California • Phone OLYmpic 2-0800

BRANCHES

SEATTLE: Smith Tower, Seneca 1727

PORTLAND: Dekum Building, Capitol 1708

SAN FRANCISCO: 7 Front St., SUTTER 1-6068

LOS ANGELES: 711 E. Gage Ave., ADAMS 1-9279

BOISE: 1116 No. 18th St., Phone 2612

ST. LOUIS: 843 So. Lindbergh Blvd., WYndown 2226

Other **AMERICAN** "Custom-Built" Products

Air drill hose
Cement placement hose
Cement gun hose
Chute liners
Dredge sleeves
Pulley lagging
Sand suction hose
Water suction hose

PRODUCERS OF AGRICULTURAL LIMESTONE

PLAN TO ATTEND THE
ANNUAL CONVENTION OF THE

NATIONAL
AGRICULTURAL LIMESTONE
INSTITUTE

at the

BLACKSTONE HOTEL
CHICAGO, ILLINOIS
February 19 and 20, 1954

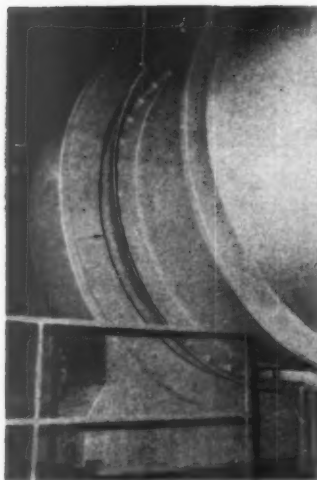
TWO SPECIAL PANEL FEATURES

One on Operating Problems

One on Promotion—"What I Have Done to Promote the Sale
of Aglime"

EITHER OF THESE IS WELL WORTH THE
EXPENSE OF THE TRIP TO CHICAGO

Write for Program NALI, 619 F St., N. W., Washington 4, D. C.



Cooling air circulates around outside of kiln's discharge end, and on underside of nose castings, as shown. Rotary kilns now in operation can be modernized with installation of air-cooled end.



Pays for Itself in 2 to 3 Years

... IN REFRACTORY SAVINGS ALONE!

BIG REFRACTORY SAVINGS . . . Discharge end of kiln shell stays cool, round and rigid. Refractory brick at discharge end lasts longer because air-cooled discharge end eliminates warpage or end distortion.

BIG MAINTENANCE SAVINGS . . . Fewer shut-downs to replace end brick. Less loss of valuable production time. Savings in brick, labor and downtime will pay for air-cooled end several times over during life of kiln.

BIG FUEL SAVINGS . . . Air-cooled discharge end makes possible a positive air seal between firing hood and kiln. Temperature inside kiln is not decreased by infiltration of cold air. Result — *fuel savings!*

A-3566

Get more facts from the A-C representative in your area . . . or send for Rotary Kiln Bulletin 07B6368A. Allis-Chalmers, Milwaukee 1, Wisconsin.



ALLIS-CHALMERS

Pulverator is an Allis-Chalmers trademark.

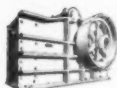
Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.



Pulverator



Vibrating Screens



Jaw Crushers



Gyratory Crushers



Grinding Mills



Kilns, Coolers, Dryers



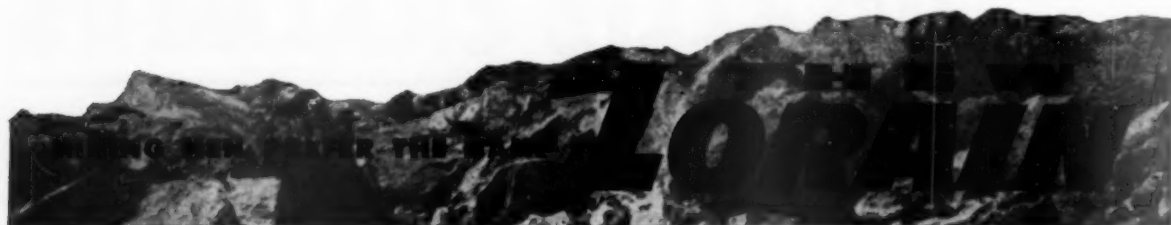
706,585 TONS LOADED BY / LORAIN IN 4½ YEARS

Niagara Stone Company of Niagara Falls, New York, bought a 1¾ yd. Lorain Shovel, model L-80, back in July, 1948. Since that time, the Lorain has worked steadily in their quarry, digging dolomite limestone to feed the crushing plant. Each year, production increased at a steady pace and in 1952, more than 226,000 yards of material were loaded to meet increased demands. A grand total of 706,585 tons have been credited to this single Lorain in the 4½ year period.

Job records like this one are typical of the performance turned out by Lorains in pits and quarries

— records that go back many years on some of the toughest digging any shovel can encounter. That's because Lorains are built for the rough, tough work in rock — built to take the most severe punishment and yet give steady performance year after year. When your job calls for a ½ yd. to 2 yd. class machine — as shovel, crane, dragline or clamshell — you can be sure there's a Lorain to fill your need. And you can also be sure Lorain quality will pay its way in steady production and profits.

THE THEW SHOVEL CO., LORAIN, OHIO



**"There's
only
ONE
reason!"**



IT'S JUST THAT SIMPLE. There's only one reason in the world why so many wire rope users in the quarries prefer Roebling wire rope... *it costs a lot less on the job than any other.*

For maximum wire rope efficiency and economy, call your nearest Roebling office for a Field Man. He'll recommend the best ropes for your requirements.



ROEBLING **CFI**

A subsidiary of The Colorado Fuel and Iron Corporation

JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J. BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 5625 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 331 N. CHEYENNE ST. • EXPORT SALES OFFICE, TRENTON 2, N. J.

THE BARBER-GREENE *Redi-Fab* SERIES

MEETS THE NEED OF 2 OUT OF 3

PERMANENT CONVEYOR INSTALLATIONS



Truss or Channel Frame Construction

WHAT PACKAGED CONSTRUCTION MEANS TO YOU!

A study, based on more than 35 years' experience in the design and installation of belt conveyors, showed:

2 out of 3 conveyors fall within the range of B-G Redi-Fab "Packaged" Permanent Conveyors.

With the Redi-Fab Series:

- (1) You get a quotation quickly.
- (2) You get fastest delivery because Redi-Fab components are manufactured in advance—they are normally sold to you "off-the-shelf" by your B-G distributor or from factory stocks.
- (3) You completely eliminate special engineering costs.
- (4) You greatly reduce the time and cost of erection.
- (5) Your Redi-Fab Conveyor can be lengthened, shortened or otherwise altered to meet new conditions.

WIDE CHOICE OF COMPONENTS AND ACCESSORIES

Redi-Fab components and accessories include drives, feeders, belts and belt covers, carriers, backstops, A-frame, truss sections, channel frames, walkways, hoppers, etc.

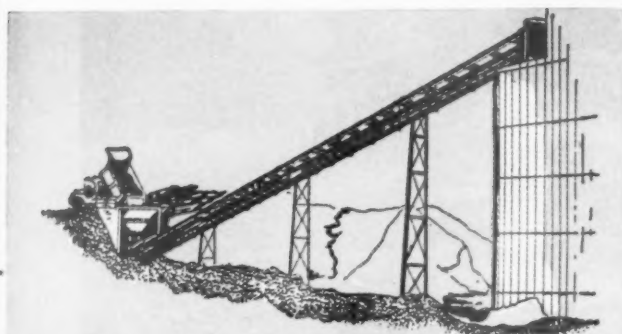
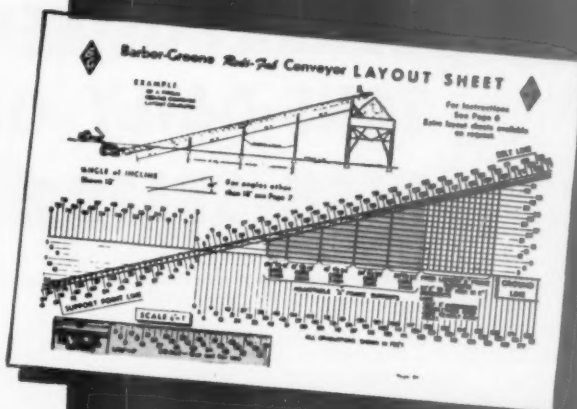
WRITE FOR *Redi-Fab* CATALOG

A copy of the Barber-Greene Redi-Fab Catalog will be sent promptly on request.

see your ***B-G*** distributor ...or write

YOU CAN SELECT YOUR OWN CONVEYOR

While a Barber-Greene representative will gladly assist you in selecting your Redi-Fab Conveyor, you can actually do it yourself. Right out of the catalog. No knowledge of engineering is required. All you need to know is the material to be handled, the capacity you require and the elevation. All other information, including an easy-to-use layout sheet, is right in the catalog.



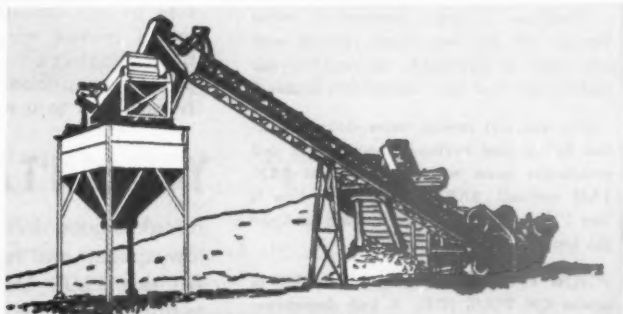
Typical Redi-Fab Conveyor elevating truck-delivered material to a washing and screening plant. Feeders are available, driven from conveyor foot shaft.



Stock-piling from truck. Redi-Fab drive options permit locating power unit near foot end to allow maximum overhang at head end.



Working with B-G car unloader, Redi-Fab Conveyor charges bins with coal and coke. Application is common for handling aggregates, bulk chemicals, etc.



Crusher discharge is elevated to vibrating screen for delivery to bins. Redi-Fab drives available to operate screen and conveyor from same power unit.

280

Barber-Greene

Aurora, Illinois, U. S. A.





QUARRY OWNER HITS 1,273 TONS DAILY OUTPUT WITH HIGH-SPEED ^{SCHIELD} *Bantam* METHOD

W. B. Mount, Maymead Lime Co., Shouns, Tenn., AVERAGED 127 CU. YDS. HOURLY in one 9 hour day . . . AVERAGED 1,273.04 TONS daily in a 9-day operation, loading out stockpiled crusher run stone! According to Mount, this remarkable production record was achieved the FIRST time they had enough trucks to keep up with the BANTAM! Here is the daily record:

1st Day	— 1146.27 Tons
2nd "	— 1142.00 "
3rd "	— 1186.11 "
4th "	— 1234.00 "
5th "	— 1392.00 "
6th "	— 1467.00 "
7th "	— 1436.00 "
8th "	— 1346.00 "
9th "	— 1108.00 "

TOTAL 11,457.38!

OWNER PLEASED WITH PERFORMANCE

"Needless to say," commented owner Mount, "we are very much pleased with this piece of equipment in handling our agricultural lime and construction stones!"

You, too, can realize tremendous production boosts and savings in equipment and manpower costs with the low cost BANTAM method! BANTAMS cost you less to buy . . . less to own and operate, and get the tough jobs done faster!

NOW is the time to see a BANTAM in action ON YOUR JOB! A free demonstration can easily be arranged WITHOUT OBLIGATION! See for yourself how the BANTAM feeds crushers and ready-mix batching plants . . . how the BANTAM Truck-Crane with its big 12,000 lb. lifts can replace your older gin-pole methods for faster handling of cut stone . . . how the BANTAM keeps up with a constant stream of trucks in your pit!



BANTAM'S NEW CRAWLER . . . with low ground bearing pressure, brings added efficiency to the sand and gravel pit. Full Circle swing makes it easy to load out of tight spots or to trucks on either side of rig! Independent, 2-speed travel makes easy work of side-bank digging . . . Automatic dipper trip (optional) cuts time between bites to a minimum!



YOU CAN'T AFFORD NOT TO OWN A BANTAM

It makes good dollar sense! Low initial cost . . . low operating cost . . . low upkeep and repair . . . that's the economy of owning a BANTAM! All this PLUS high production and many time and labor saving features normally found only on larger, more expensive rigs, adds up to profitable operation in any man's language. There's a BANTAM mounting, too, that will fit your needs EXACTLY! BANTAMS mount on Crawlers . . . Crane Carriers . . . Remanufactured trucks or on your own truck! See for yourself! Ask for a free demonstration on your job . . . ask for free literature on the BANTAM Shovel-Crane Line . . . DO IT TODAY!

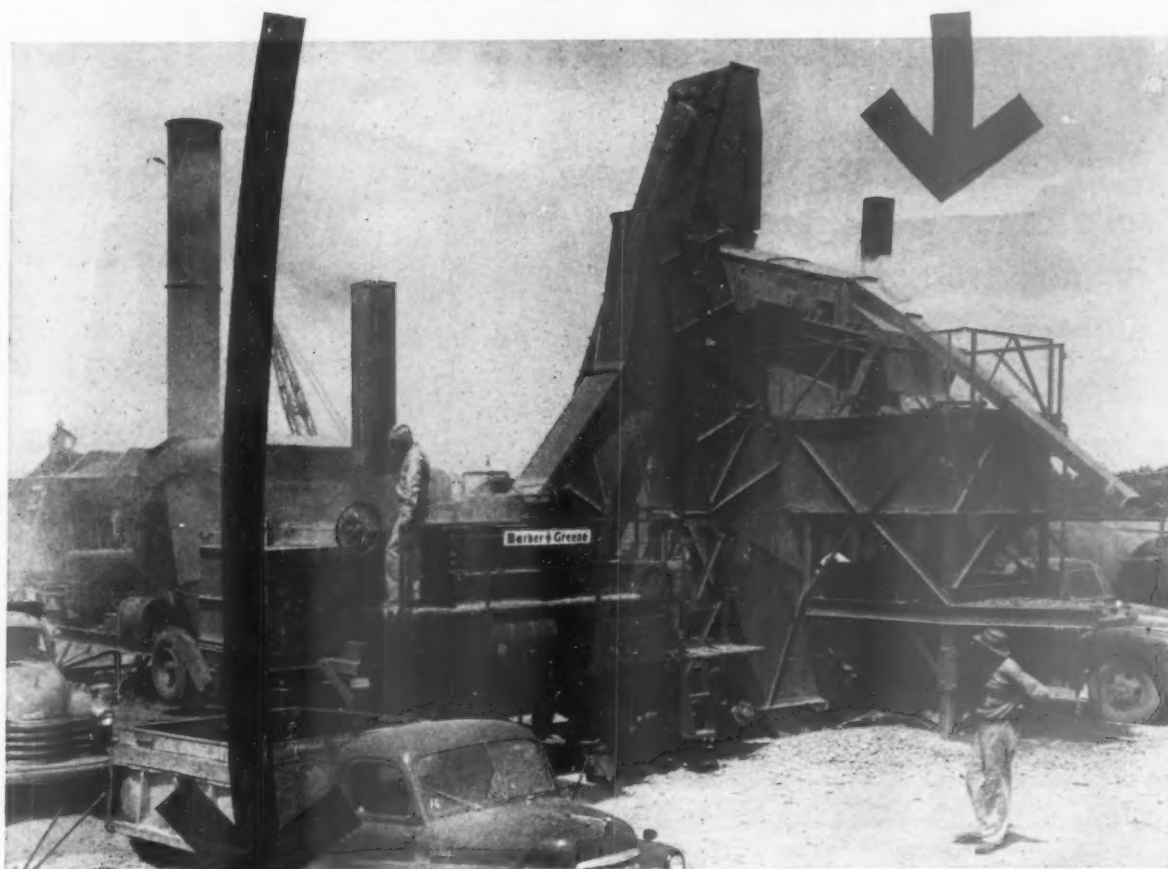
SB - TMSH - 1



^{SCHIELD}
Bantam
COMPANY • 216 PARK ST., WAVERLY, IOWA, U.S.A.

WORLD'S LARGEST PRODUCERS OF TRUCK-CRANES AND EXCAVATORS

SIMPLICITY GYRATING SCREEN— A VITAL COMPONENT IN THE EFFICIENT BARBER-GREENE 848 BITUMINOUS PLANT



The Barber-Greene 848 Plant is well known to road construction men for fast, efficient production of the finest bituminous mix. And no wonder. For the aggregate fed into the plant is sized and separated on a Simplicity Model BH Enclosed Gyrating Screen. This 3½ Deck Screen has a rated capacity of 100-120 tons per hour, but in actual operation, it consistently handles aggregate at a much higher rate. Simplicity single, double and triple deck Gyrating Screens are available in a number of sizes to screen and separate materials fast and accurately. Maintenance and operating costs are unusually low. For complete information about Simplicity Screens, Os-A-Veyors and other equipment, consult a Simplicity sales engineer or write us today.

See you at
the Sand &
Gravel Show

•
Booth No. 58

128

- Sales Representatives In All Parts Of The U.S.A.
- For Canada: Canadian Bridge Engineering Company, Ltd., Walkerville, Ontario
- For Export: Brown and Sites, 50 Church Street, New York 7, N. Y.



ENGINEERING COMPANY • DURAND, MICHIGAN

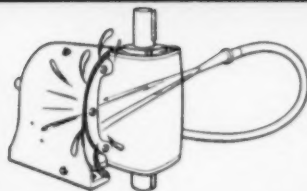
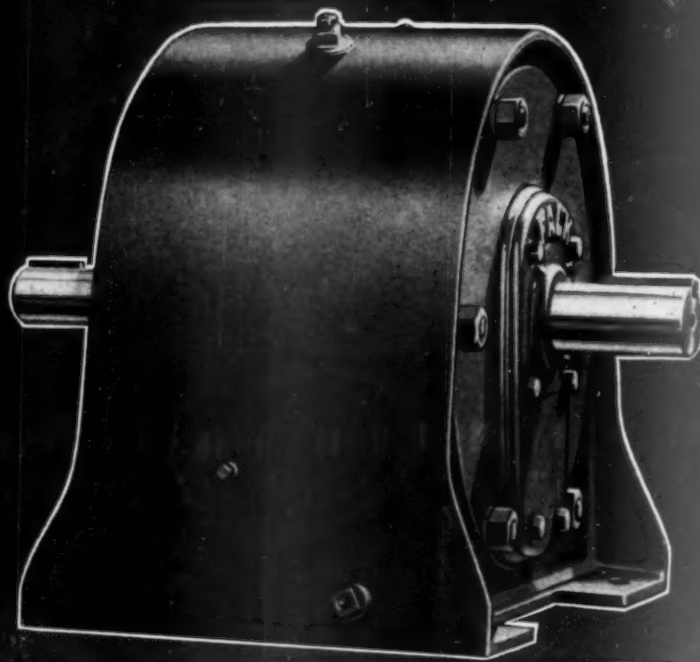
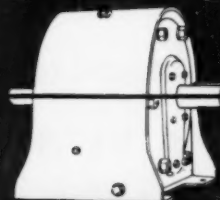
ROCK PRODUCTS, January, 1954

51

The versatile, STRAIGHT LINE

ALL-STEEL
TYPE "C" SPEED REDUCER

High and low speed shafts
suitable for V-belt, gear,
chain as well as coupling
connections



**The Type "C" Speed Reducer
has these "In-built" Factors:**

Sealed Housings. Dual closures and one-way vents keep oil in, dust and moisture out. Units are splash-proof, leakproof, dust-proof.

Positive Lubrication. Large sump capacity . . . oil-tight construction assures clean lubricant . . . direct dip of revolving elements provides positive lubrication at all speeds.

Precision Gearing. Heat treated alloy steel, precision cut and shaved helical gearing throughout . . . quiet-operating crown shaved pinions . . . taper bored gears for easy ratio changes.

Wide Speed Range. Selective ratio combinations provide output speeds from 1.5 rpm to 1430 rpm with stock gears.

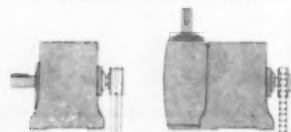
All-steel Housings. Unbreakable, strong, rigid. Generous overhung load capacities provided by wide bearing spans, large shafts and bearings.

Streamlined inside and outside. Smooth, clean surfaces; machine welded construction conforms to NEMA motor frames.

**A FEW TYPICAL DRIVES
FOR "C" AND "CB" UNITS**



COUPLING TO "CB" UNIT



V-BELT
TO "C" UNIT

CHAIN
TO "CB" UNIT

The ideal type for Turbine, Engine or Special Motor

Here is an exceptionally versatile member of the famous FALK line of reduction units. The Type "C" Straight Line Speed Reducer is an all-steel concentric shaft unit rated in accordance with AGMA standards. It is structurally similar to the universally popular FALK Motoreducer, and offers many special application advantages.

It can be driven by motor, turbine or engine with direct coupling connection—or through a V-belt or chain drive. It lends itself effectively to hydraulic coupling, brake-wheel or overload protective coupling, multi-speed transmission, or to variable speed drives—without modification. Units can include self-contained backstop if desired. Ratio can be modified with easily installed stock gears. With modifications, unit can be used as a speed increaser.

These all-steel Straight Line Speed Reducers are available for prompt delivery in standard ratios in horizontal and vertical concentric models, also in horizontal and vertical right-angle models; in single, double, triple and quadruple reduction. For full details, write for Bulletin 1104.

FALK

... a good name
in industry

THE FALK CORPORATION • 3001 W. Canal St. • Milwaukee 8, Wis.



CALL ON **STANDARD**

A ten-foot diameter *Standard* kiln is pictured above, ready to be shipped to its Louisiana destination. Lower photo shows kiln shell mounted on flat cars. Another car carries the enclosing furnace, trunnions and running gear.

Although by no means the largest kiln to be completed by *Standard*, it is a good example of our ability to design and build rotary processing equipment of any size—**LARGE or SMALL.**

In this, our 50th Anniversary Year, we take pride in the fact that for precision engineering and fabrication of heavy duty machinery, the call is so often for *Standard*.

**Rotary
KILNS
COOLERS
CALCINERS
DRYERS**
**ANY size
ANYwhere**

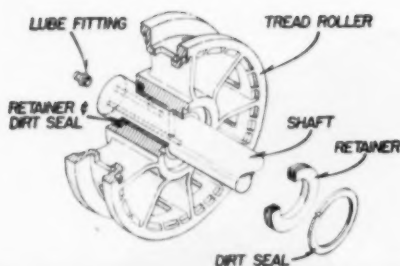


WRITE FOR COMPLETE DESCRIPTIVE LITERATURE



STANDARD STEEL CORPORATION

5036 Boyle Avenue, Los Angeles 58 • 7 East 42nd Street, New York 36



LIMA DIRT SEALS

CUT DOWN-TIME AND MAINTENANCE COSTS



This LIMA shovel, demonstrates the importance of LIMA'S dirt seals and grease retainers.

In such work, abrasive material which wears out the bushings and shafts of ordinary shovels is excluded. LIMA seals the lubricant in and dirt out, thereby reducing friction and prolonging the life of bushing, roller and shaft.

COMPARE! No other machine gives you as much as LIMA!

1. Bronze bushings in tread, idler and drive rollers are protected by piston-type dirt seal rings and retainers.
2. All gears, smaller parts and shafts which are subject to extra wear are flame or induction hardened for longer life.
3. Main machinery is placed well back of center of rotation to eliminate excess counterweight.
4. Anti-friction bearings, used at all important bearing points, reduce destructive friction, fuel consumption and lubrication requirements.
5. Big capacity drums and sheaves lengthen cable life by reducing the need for double wrapping and sharp bends in cable.
6. Full air controls on travel, hoist, swing and boom hoist, result in smoother, more precise operation, minimum maintenance and less operator fatigue.
7. Torque converter (optional) automatically adjusts speed to load requirements, minimizing shock loading, making performance smoother and faster.
8. Wherever you are, you can depend on skilled service and nearby warehouse stocks of parts to keep your LIMA on the job continuously.

COMPARE and you'll specify LIMA for shovels ($\frac{3}{4}$ yd. to 6 yds.), cranes (to 110 tons) and draglines (variable).

DISTRIBUTORS IN ALL PRINCIPAL CITIES OF THE WORLD

LIMA

SHOVELS • CRANES
DRAGLINES • PULLSHOVELS



Construction Equipment Division

BALDWIN-LIMA-HAMILTON CORPORATION

Construction Equipment Division
LIMA, OHIO, U.S.A.

No. 1 of a series

**How Bemis makes
GOOD multiwall bags
for you**

A.R. Ewing, director of the Bemis Paper Control Laboratory, has twenty-nine years' experience in this field. He is shown operating the laboratory's electrohydraulic tensile tester, one of the many precision devices that make the Bemis laboratory probably the most complete in the country devoted to bag papers.



Use good paper... test it... prove it!

Bemis sets high standards for the various papers used in making Bemis Multiwall Bags. And we are able to maintain these standards because we buy our paper from a variety of top sources. These multiple sources are the key—if one should fall below par, the others are there to supply our needs. We don't have to take less than the best.



Bemis

**General Offices—St. Louis 2, Missouri
Sales Offices in Principal Cities**

ROCK PRODUCTS, January, 1954

LARGEST...

Most Modern Light Aggregate Plant USES VULCAN ROTARY KILNS

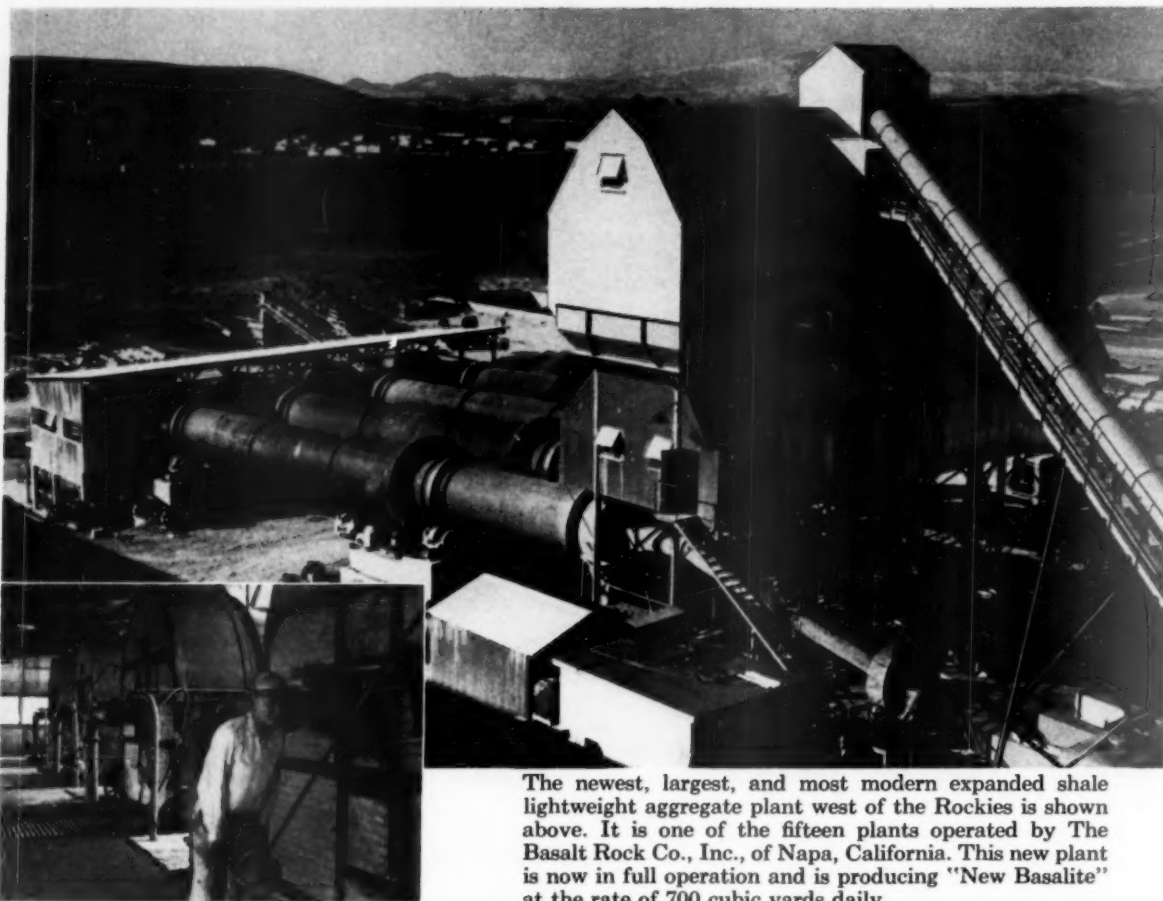


Illustration above shows the four firing hoods which are adapted for both gas and oil.

**Any information on items listed below
will be sent to you immediately:**

Rotary Kilns, Coolers and Dryers	Shaking-Chute and Chain Conveyors
Rotary Retorts, Calciners, Etc	Heavy-Duty Electric Hoists
Improved Vertical Lime Kilns	Self-Contained Electric Hoists
Automatic Quick-Lime Hydrators	Scraper-Loading Hoists
Double-Roll Briquetting Machines	Cast-Steel Sheaves and Gears
Open-Hearth Steel Castings	Steam Locomotives
Steel-Plate Fabrications	Diesel and Gasoline Locomotives
	Diesel-Electric Locomotives
	Electric Locomotives and Larrys

The newest, largest, and most modern expanded shale lightweight aggregate plant west of the Rockies is shown above. It is one of the fifteen plants operated by The Basalt Rock Co., Inc., of Napa, California. This new plant is now in full operation and is producing "New Basalite" at the rate of 700 cubic yards daily.

This plant, which is the last word in design and efficiency includes four VULCAN 8' x 125' all-welded Rotary Kilns. Each kiln has two tires, and is driven by a 20 hp varidrive motor with a standby diesel-driven generator, in case of power failure. The four VULCAN Kilns are gas fired, and in case of an emergency are also adapted for use with oil.

Each and every part of all VULCAN Kilns are precision designed, precision built to give you maximum protection against mechanical troubles of all kinds. The VULCAN IRON WORKS of WILKES-BARRE, and its 105 years of experience are ready and willing to give you information on Rotary Kilns for any application. Write for detailed and fully illustrated Bulletin No. A-442 today.

VULCAN IRON WORKS

NEW YORK OFFICE
50 CHURCH ST., N.Y., N.Y.

WILKES-BARRE, PA., U.S.A.
ESTABLISHED 1849

CABLE ADDRESS
"VULWORKS WILKESBARRE"

High Production and Lower Maintenance— *You Get BOTH with "Eucs"*



Built for tough off-the-highway service, Rear-Dump Euclids have increased production and reduced hauling costs on scores of open pit mining and quarry operations.

Ability to deliver "plus" performance year in and year out has made "Eucs" the accepted standard for comparison . . . here are some of the reasons why:

RUGGED SIMPLICITY

Designed and built for long life and low maintenance cost. All of Euclid's experience and facilities are devoted to specialized off-the-highway earth moving equipment.

CAPACITY

Euclids have payload capacities of 10, 15, 22, 34 and 50 tons. Because they are matched to various sizes of loading and crushing equipment, "Eucs" provide a well balanced operation for open pit haulage and increase the efficiency of the loading unit.

POWER AND SPEED

Powered by diesel engines of 125 to 600 h.p. "Eucs" have top speeds with full payload, up to 36 m.p.h. Five and ten speed transmission, or torque converter with semi-automatic transmission available. The favorable ratio of horsepower to payload means more pay tons hauled every trip.

VERSATILITY

"Eucs" are efficient for moving any material on any length of haul; handle overburden, rock, coal, ore and other materials loaded by shovels, draglines, transfer hoppers and mobile loading equipment.

If you are interested in higher production at lower cost, have your nearby Euclid Distributor show you what "Eucs" are doing on work similar to yours. He'll be glad to make a hauling cost estimate for your job—no obligation, of course.



EUCLID DIVISION

GENERAL MOTORS CORPORATION

Cleveland 17, Ohio



Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE



New Dodge "Job-Rated" Trucks...



New! Spectacular low-built lines with pick-up and panel floors as low as 22½ inches from the ground... knee-high for loading ease! Lower running boards for easier entry! Lower hood for greater visibility!



New! Great V-8's and thrifty 6's including the most powerful V-8's of all leading trucks... with revolutionary hemispherical combustion chamber! Available in 1½-, 2-, 2½-ton... standard on 2¾-, 3, 3½-ton!

with new low work-saving design...



New Steering system means easier handling... keeps Dodge ahead of the field with sharpest turning of any comparable trucks. More slant to steering wheel post. New power steering available in 4-ton models!



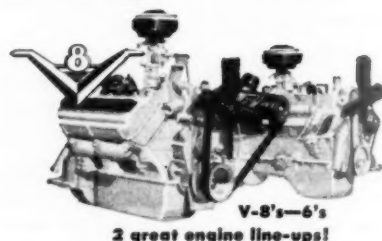
New! Full-vision luxury cabs with big one-piece windshield! More vision area than in any other leading make! New easy-chair seats! New cab sealing against dust, drafts! New two-tone interior styling!

help reduce your trucking costs!

New! Over 75 features! New, low, work-saving, time-saving design! New payload increases! New cab heating and ventilation! New styling from road to roof! New value leader models! New shorter conventional tractors, only 102 inches from front bumper to rear of the cab. New easy-shifting transmissions!

Free book on power! Explains the 3 basic kinds of engine efficiency... tells what they mean to you in power and economy! Get your free copy at your friendly Dodge dealer's! See him today!

New! Even greater values...yet still priced with the lowest!



SEE YOUR FRIENDLY DODGE DEALER

NEW DODGE "Job-Rated" TRUCKS

ROCK RATED

with
Built-In features
to save you money



MODEL 1055 — 3½ yards
MODEL 955A — 2½ yards

Strength was no afterthought on this husky machine. It started on the drawing boards — with all-welded construction of tough rolled steels — with extra strength where strength is needed — with the ability to absorb continuous shock loads . . . and the stability to let you use full power for bigger production. It is the steady digging, without time-outs for pampering, that saves you money.

Add smooth hydraulic control to cushion operations and reduce operating fatigue, and you have the built-in advantages to make all kinds of rock work more profitable. The Model 1055 (3½ yard) and the Model 955-A (2½ yard) have proved it. Ask to see one on the job.

P&H MAGNETORQUE* ELECTRIC SWING

gives you the slickest, fastest cycle you've ever known on machines of this size . . . from 15% to 25% faster than any others! And there are no delays for adjustments or replacement of swing frictions. Magnetorque eliminates all that — and lasts the life of your machine.

*T.M. of Harnischfeger Corporation for electro-magnetic type coupling.

P&H LARGE EXCAVATOR DIVISION
HARNISCHFEGER
CORPORATION
MILWAUKEE 46, WISCONSIN

the **P&H** Line



TRUCK CRANES



DIESEL ENGINES



POWER SHOVELS



PRE-FABRICATED HOMES



ELECTRIC HOISTS



SOIL STABILIZERS



WELDING EQUIPMENT



OVERHEAD CRANES

WHAT FULL CONTROL MEANS

to the operator of an Allis-Chalmers TR-200 Motor Wagon



Fast, Efficient Loading — hydraulic steering control gets the TR-200 under the shovel fast without tiring wheel fight. Large top area permits fast loading with less spillage . . . double steel floor is reinforced with heavy oak plank to absorb loading shocks. Steering jacks and tires are fully protected from falling rock. The TR-200 carries 15 cu. yd. heaped or 18-ton loads.



Quick, Clean Dumping — operator controls two hydraulic jacks to dump and return bowl. Because this unit's wheelbase remains stationary, all four brakes can be set for maximum safety in bank-edge dumping. Rear end dumps far enough over embankment to eliminate rehandling material. Tapered bowl design and 70-degree tilt give quick, complete load ejection. Body may be heated to prevent load freezing

Safe, High-Production Hauling — no worry when highballing a full load because four-wheel air brakes stop the TR-200 quickly even if the engine should stall. Steering pistons are equipped with stops to eliminate jackknifing. High horsepower-to-yardage ratio and large, rock-lug tires speed your operations . . . even on steep grades and in heavy going. The TR-200 travels at speeds up to 21.6 mph., delivers more loads, reduces idle shovel time.



Plus Added Versatility — The same 176-hp. diesel tractor unit and hydraulic controls may be used to operate an interchangeable self-loading scraper body for large scale stripping and hauling jobs.



GET THE FULL STORY FROM
YOUR ALLIS-CHALMERS DEALER

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, WIS.

users specify **AMSCO** **DREDGE PUMPS**

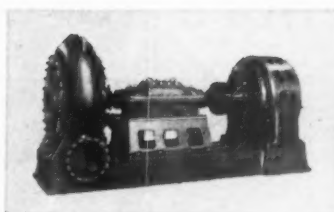
More Amsco Pumps have been placed in dredges for sand and gravel recovery, river and harbor dredging, shell reclamation, and more recently, ores such as titanium, than those of any other manufacturer. The reasons for this preference are clear:

Amsco Pumps, with working parts made of manganese steel, can withstand the terrific abrasion of sand and the sledge hammer blows of rock much longer than any others.

Amsco Pumps are designed from experience and engineered for your job.

► These six basic types of Amsco Dredge Pumps—actually there are 40 different models—give a general idea of the complete line. The basic differences are in rated capacity, weight and construction of bearings, and in proportionate shaft sizes. Such modifications are made for economy... There is no dollar-wasting excess weight on the Amsco Pump engineered for your job. Water end parts are also available in ABK metal subject to our engineers approval.

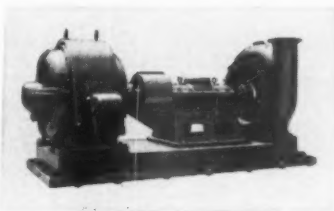
Amsco has a complete line of welding rods and electrodes to assure prolonged life and economical service of Amsco Dredge Pumps.



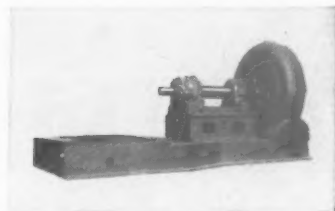
16-inch type XH—directly connected design; right hand bottom discharge. Can be fitted with "standard" or "counter-flow" water ends.



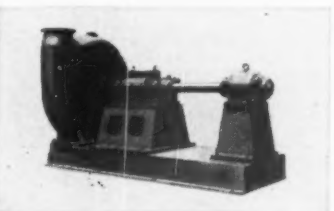
6-inch type SB-CF, form 24—antifriction bearing; stub base or belt driven; right hand bottom discharge.



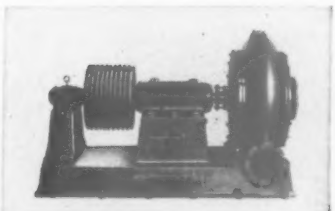
10-inch type M—left hand top discharge. Built in 6-, 8- and 10-inch sizes. Can be fitted with "standard" or "counter-flow" water ends.



20-inch type XHRB-CF—left hand bottom discharge; antifriction thrust and radial bearings.



12-inch type H-CF, form 40—right hand, top vertical discharge; belt driven. Combination two directional-type ball thrust bearing and sleeve-type radial bearings.



8-inch type C, form 30—belt driven; left hand bottom discharge; combination ball thrust and ring oiling sleeve main bearings. Available with "standard" or "counter-flow" water ends.

Brake Shoe

AMERICAN MANGANESE STEEL DIVISION

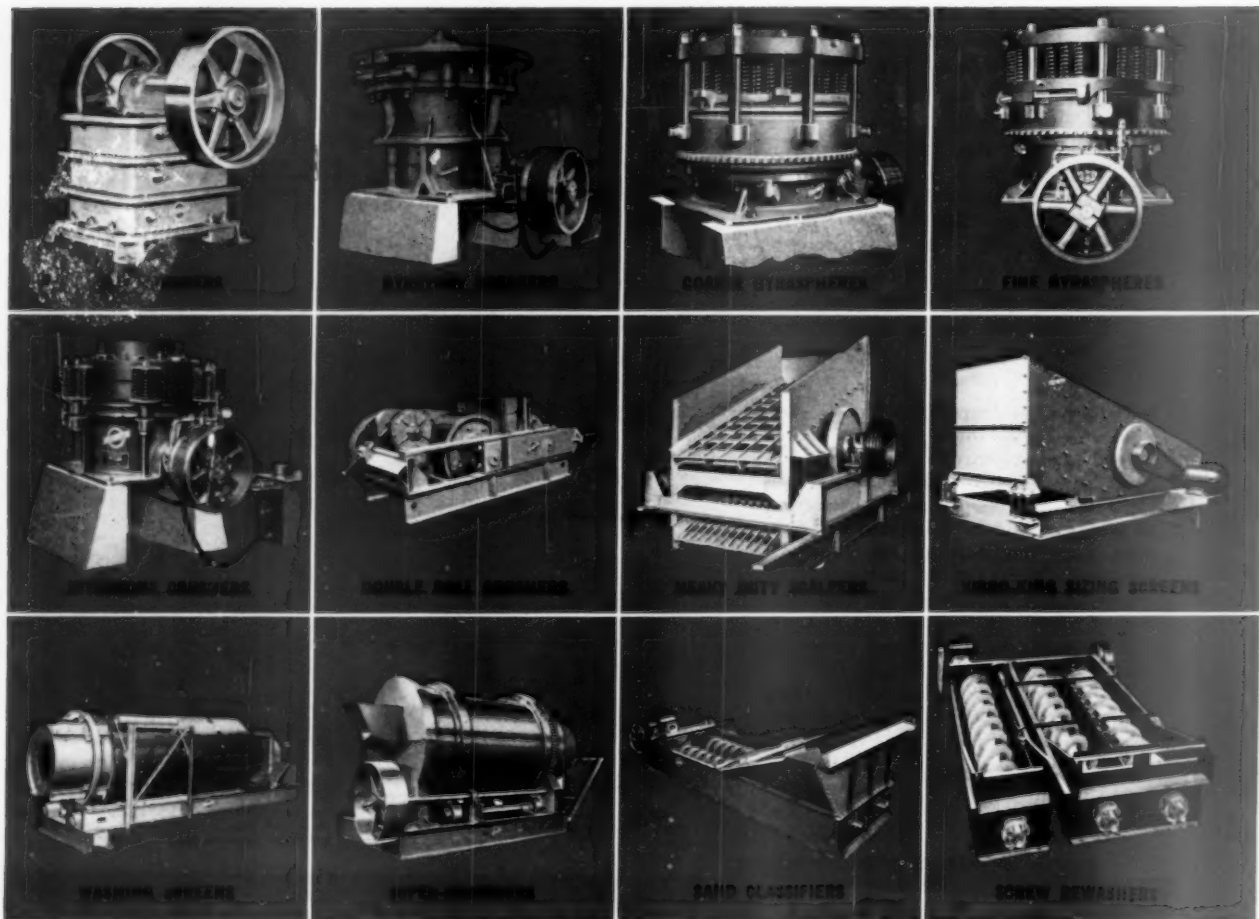
377 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que. Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

TELSMITH

Equipment

from Crushers to Bin Gates



SMITH ENGINEERING WORKS, 508 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Address: Sengworks, Milwaukee

51 East 42nd St. New York 17, N. Y. 211 W. Wacker Drive Chicago 6, Ill. 713 Commercial Trust Bldg. Philadelphia 2, Pa. 238 Main Street Cambridge 42, Mass. Boeck Ept. Co. Milwaukee 3, Wis. The McLean Co. 3525 Lakeside Ave. Cleveland 14, Ohio
 Marens Ept. Co. Rochester, Mich. • Rish Ept. Co. Cincinnati 14, & Portsmouth, Ohio—Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va.
 Robert S. Bailey, 816 W. 5th St., Los Angeles 17, Calif. • Mines Eng. & Ept. Co., San Francisco 4, Calif. • Clyde Ept. Co., Portland 9, Ore., & Seattle 4, Wash.



ROTARY GRIZZLIES



SAND TANKS



SAND DRAGS



APRON FEEDERS

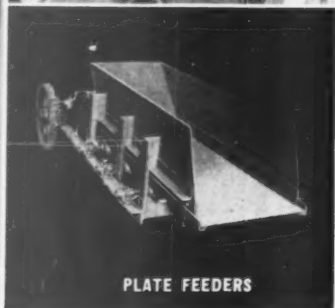


PLATE FEEDERS



ELEVATORS



CONVEYORS



BIN GATES

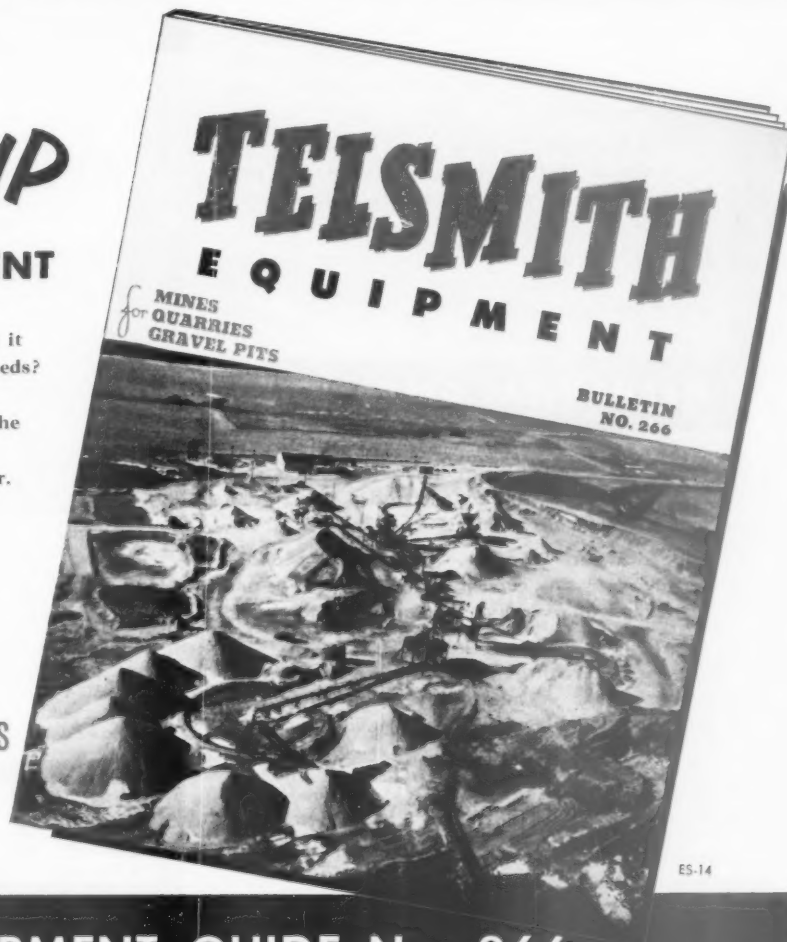
GET THIS CHECK-UP

ON YOUR EQUIPMENT

Is your plant, and particularly its equipment so designed and built that it meets all your deposit and market needs? Is capacity high... and upkeep low? Does it pay the profits it should for the money you have invested? These are the *equipment facts* you're looking for. You'll find them in this guide. All the latest data on the newest equipment—Telsmith-engineered, modern, flexible, and the right type, model and size to turn out quality aggregate in quantity, at low cost.

Consult TELSMITH Engineers

let them relieve you of technical detail in plant planning and equipment selection.



ES-14

NEW

EQUIPMENT GUIDE No. 266

No cost... No obligation

WEMCO SAND PREPARATION MACHINES

an exclusive design... that earns extra profits for you

From either standpoint — profits or operating costs — you're dollars ahead with Wemco Sand Preparation Machines. These modern designed Wemco units are unmatched for their ability to produce desired ton-nages of specification sands at lowest possible cost. Owners of Wemco Sand Preparation Machines consistently earn higher profits because the exclusive design of these units means greater efficiency in terms of the following important factors:

PRODUCTION RESULTS

Fine Fraction Control — for elimination of slime, clay and other foreign materials, with exact retention of desired quantities of fine sands.

Medium Fraction Control — with sharp segregation between coarse and fine particles for the control of wastage and the exact blending of middle size screen fractions.

Coarse Fraction Control — with thorough washing action and accurate segregation of medium and fine sizes to allow sharp blending for desired specifications.

Dewatering and Desliming — for high capacity production of sands of all sizes, clean in content and free of excess moisture.

MECHANICAL OPERATION

Large Settling Tank — greater effective pool area and wide overflow weir for proper flow velocity and improved settling conditions.

Large Capacity Spiral — advanced pitch design for greater raking capacity at reduced speeds and more thorough mixing, washing and draining of sand product.

Lower Operating Costs — because of long-life wearing parts, less maintenance, minimum operator attendance and low power consumption.

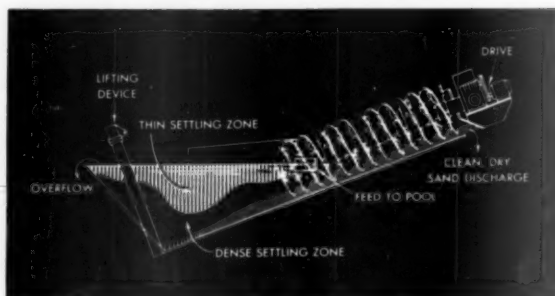
Write Wemco today for further information and recommendations on your sand production problems. Send for free Bulletin C-1-0-2.

PRINCIPAL OFFICES

San Francisco • Sacramento
Salt Lake City • Spokane
Denver • Phoenix
Chicago • Hibbing, Minnesota
New York • Birmingham
Toronto, Canada
Jeffersonville, Indiana

EXPORT DISTRIBUTORS

Fraser & Chalmers (S.A.) (Pty.) Limited
P.O. Box 619, Johannesburg, South Africa
Lilstone & Co., Inc.
P.O. Box 3368, Manila, Philippines
United Development Corporation Pty. Ltd.
P.O. Box 3460, Sydney, N.S.W., Australia
Corporacion Commercial Sudamericana S.A.
Casilla 505, Lima, Peru
The Sumitomo Machinery Co., Ltd.
5-22 Kitahama, Higashi-Ku, Osaka, Japan



Large pool area, controlled agitation assures proper conditions for rapid settling of desired sands.

WEMCO

WESTERN MACHINERY COMPANY

760-766 FOLSOM STREET • SAN FRANCISCO 7, CALIFORNIA

Mobil Mills • Coal Spirals • HMS Thickeners • HMS Pumps • Sand Pumps • Agitators
Cone Separators • Drum Separators • Hydroseparators • Fagergren Laboratory Units
Fagergren & Steffensen Flotation Machines • S.H. Classifiers • Attrition Machines
HMS Laboratory Units • Dewatering Spirals • Thickeners • Conditioners • Densifiers

Move More with a **MICHIGAN**



HERE'S A GOOD ONE:

"Handled 280,000 tons of stone and lime, in two yards—that's our MICHIGAN's 7-year record"

...SAYS THIS DELIGHTED OWNER

JOB FACTS

Job: Unloading, reloading agricultural lime; loading crushed stone into trucks and hoppers
Machine: MICHIGAN T-K-6—25' boom and ¾ yd. clamshell
Owner: Terminal Materials Co., St Joseph, Michigan—two yards, St. Joseph and Lawrence, Mich.
Tonnage: 280,000—total for nearly 7 years; working in both yards 25 miles apart

"We give this machine the 'full treatment,'" says Bela Lindenfeld, Terminal president; "work it up to 18 hours per day, 52 weeks a year. We've written it off, yet have had a mighty tempting offer for it. But it's doing too good a job for us. MICHIGAN Air Control, ease of operation, speed, mobility—those are the reasons."

Says Orville Richardson, operator: "I spend half an hour a day on

oiling, greasing and check-up; and the boss says it has sure paid off."

Isn't that exactly the kind of service you want? Watch these big, rugged MICHIGANS in action, note their speed and smooth precision—and you'll see how you, too, can Move More with a MICHIGAN. Talk to your MICHIGAN dealer; and write for interesting, helpful booklet, "Get More Yardage Through Air Power."

These are the pay-off reasons why you Move More with a MICHIGAN

- | | | |
|--|--|--|
| • MICHIGAN Air Control
—fast, smooth
eliminates fatigue,
increases yardage | • Rugged Construction
—built to withstand
extremes of hard
service | • Easy Maintenance
—no complicated me-
chanical linkage; greasing
takes only a few minutes |
|--|--|--|

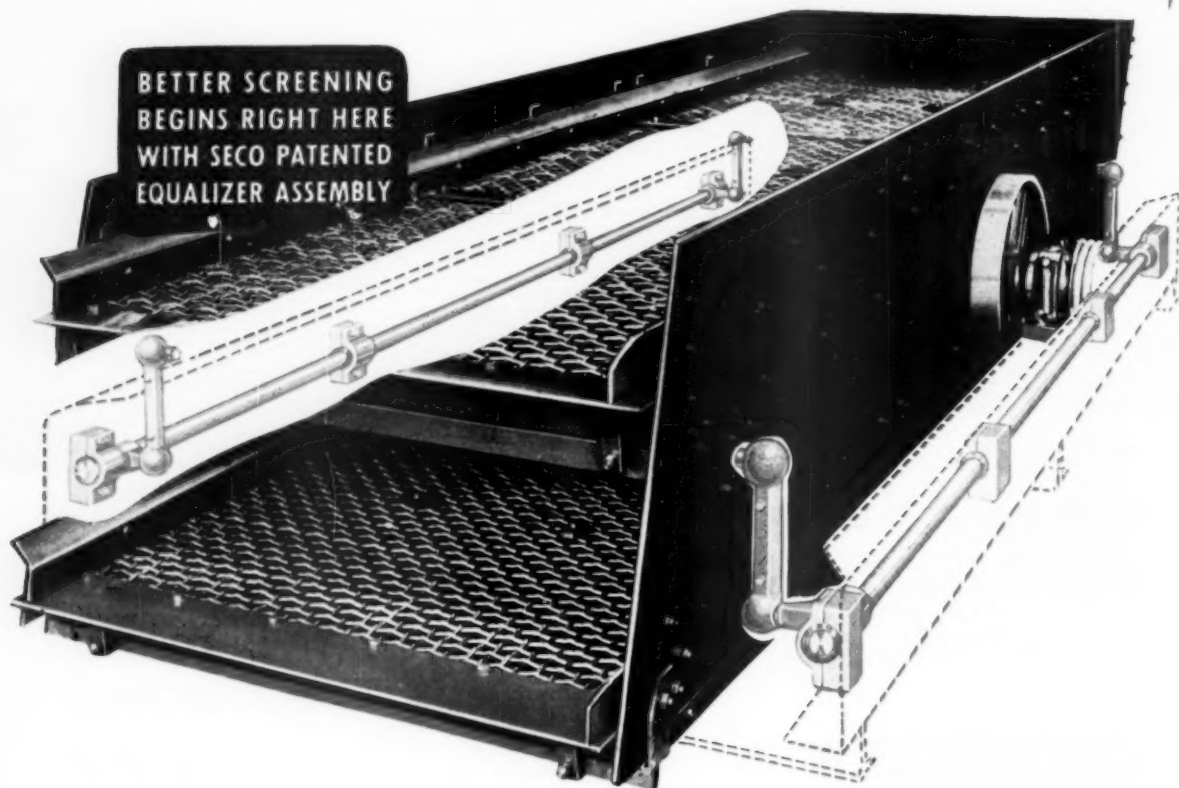
**CLARK
EQUIPMENT**

Construction
Machinery
Division

CLARK EQUIPMENT COMPANY
Benton Harbor 452, Michigan

SECO ENGINEERING

PAYS OFF IN PERFORMANCE ON TOUGHEST SCREENING JOBS



ACCURATELY COMPUTING THE CENTER OF GRAVITY

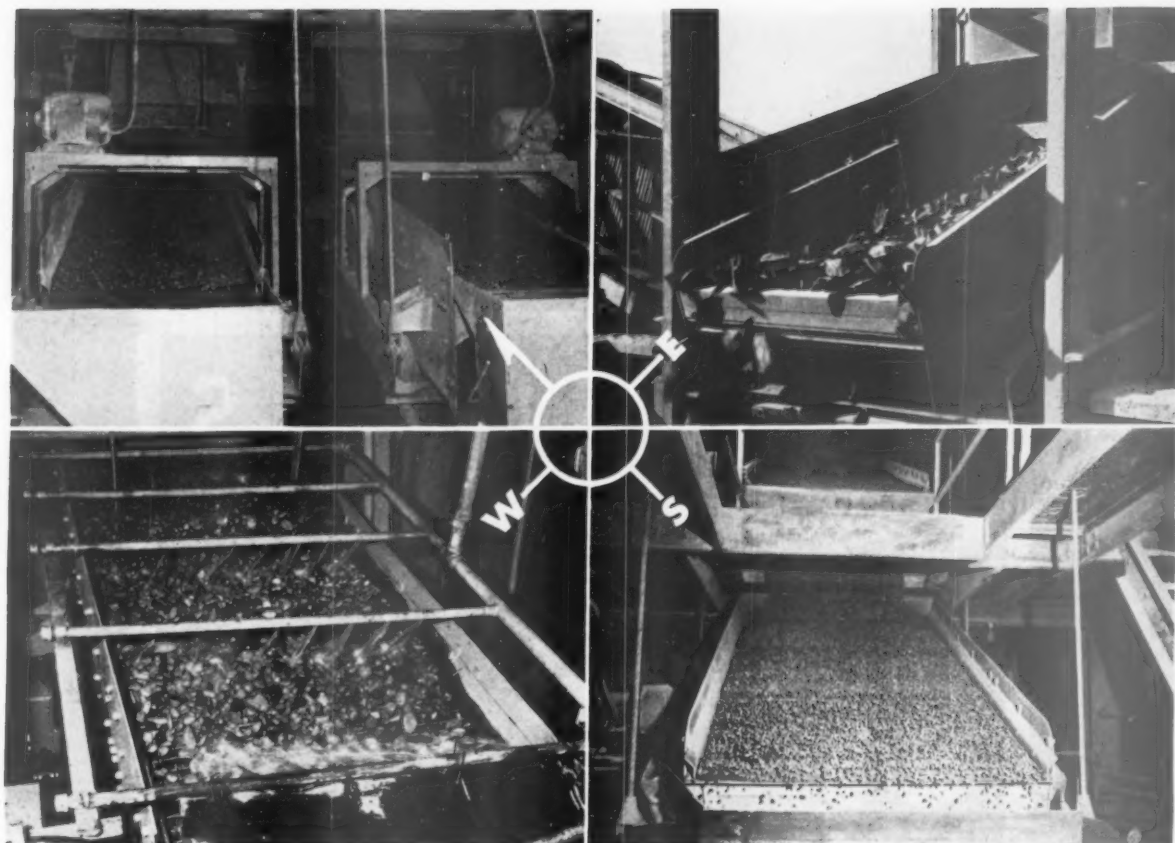


This is the key to smooth and efficient operation. Every part of the gyrating body is accurately computed as to weight and distance from center.

MACHINING PARTS TO CLOSE TOLERANCES



All machined parts undergo rigid and continuous checks for finish and accurate fit. Skilled machinists use special equipment and precision instruments to insure complete accuracy.



Put SECO Built-in Accuracy and Smoothness on Your Job!

North . . . East . . . South and West you'll find SECO vibrating screens delivering superior performance on all types of screening assignments . . . thanks to SECO engineering advancements.

Why not have the proven advantages of SECO vibrating screens on your job! SECO builds over 300 models in single, double, triple and 3½ decks . . . all featuring built-in smoothness and accuracy to give the best screening results at lowest cost per ton. Send for Catalog #203.

SCREEN EQUIPMENT CO., INC.
BUFFALO 25, N. Y.

SECO
TRUE CIRCULAR ACTION
VIBRATING SCREENS

BALANCE WHEELS COMPLETELY MACHINED FOR ACCURATE COUNTERBALANCE



Balance wheels are a precision-made part. The whole wheel is machined to very close tolerances; then carefully balanced for pull and weight distribution on sensitive ball bearing balancing equipment. This assures even and correct counterbalance at all times.

ASSURING ACCURATE FIT OF BEARINGS IN HOUSINGS



Here again SECO's extra care is evident. This equipment presses the bearings into the housings to eliminate the possibility of the outer race turning in the housing. This contributes to smooth performance and long bearing life.

HOW THE DRAW PLATES ARE ACCURATELY FORMED

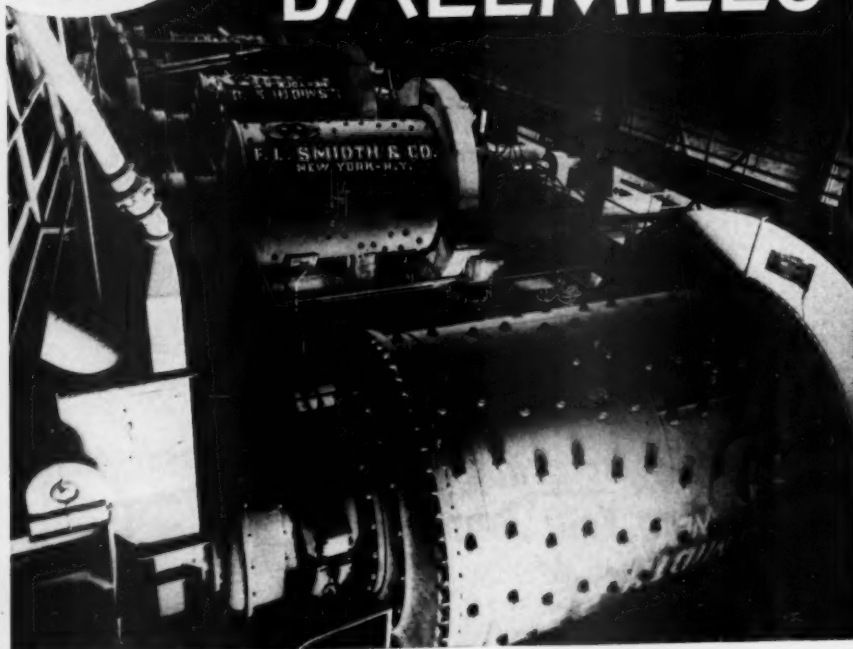
This huge, heavy-duty power brake is used especially for forming the draw plates to pin-point accuracy in dimension. This insures proper fit of screen cloth to eliminate screen cloth breakage.





SMIDTH

BALLMILLS



WET OR DRY GRINDING

OPEN OR CLOSED CIRCUIT

ALSO AIR SWEEP FOR GRINDING AND DRYING

For Smidth Machinery apply to:

F. L. Smidth & Co., A/S
Vestergade 33,
Copenhagen K, Denmark

F. L. Smidth & Co.
11 West 42nd Street
New York 36, N. Y.

F. L. Smidth & Co., Ltd.,
105, Piccadilly,
London, W. 1, England

F. L. Smidth & Cie France
80 Rue Tailbout
Paris (9e) France

F. L. Smidth & Co. of Canada, Ltd.
11 West 42nd Street
New York 36, N. Y.

F. L. Smidth & Co. (Bombay) Ltd.
42 Queen's Road
Bombay, India

"WE HEAR..."

January, 1953

Heavy construction awards, nationally, for the first 48 weeks of 1953, totaled \$13,659,972,000, which was an 8 percent decrease from the record-high, 1952 volume of \$14,782,268,000, as reported by Engineering News-Record. The decline was attributed to the sharp 69 percent drop in federal volume. Private construction and state and municipal public works, on the other hand, are setting new highs in contract volume. For the first 48 weeks of 1953, private awards totaled \$7,736,000,000, or 18 percent higher than for the corresponding 1952 period, while state and municipal awards increased 20 percent to the record total of \$4,583,000,000.

According to a recent issue of House & Home, lumber dealers reported a 15 percent increase in sales to the home-repair market during the first nine months of 1953. Beginning this year, the Census Bureau plans to check the extent of this market (subject to Budget Bureau approval) in its regular questionnaires. Current estimates range from \$4.5 billion, according to the Commerce Department, to \$6.5 billion as reported by the U. S. Chamber of Commerce.

Two huge teeth of a prehistoric animal were recently unearthed in 30 ft. of water at the bottom of a gravel deposit, during dredging operations by Fordyce Gravel Co., Victoria, Texas. The teeth, one measuring 7½ x 4½ in., and the other, 4½ x 4 in., are believed to be from a species of primitive elephant that roamed this area during the ice age and, according to a University of Texas geology professor, the teeth could be as much as 500,000 years old. If further examination proves the find rare enough, the university will undertake some excavating of its own at the location where the teeth were found. The teeth contained traces of sandstone and were believed to have been embedded in the layer of sandstone below the gravel deposit.

Construction costs remained stable in December for the fourth consecutive month, as reported by Engineering News-Record. The December Construction Cost Index was 611.48 (based on 1913=100), an 0.7 percent decrease from the November figure, while the Building Cost Index for December was 435.9 (also a 1913 base), down 0.1 percent from the November value. Both indexes were about one point below the all-time highs of last August. The upward spiral of construction costs, in terms of wages and materials, showed a marked slow-down in 1953. The Construction Cost Index rose 4.0 percent in 1953, compared with a 7.3 percent increase in 1952, while the Building Cost Index rose 2.6 percent, compared with 4.7 percent the preceding year. Declining lumber prices and smaller wage hikes were key factors in holding down the cost rise in 1953. Cement and structural steel prices, however, increased more than in both 1951 and 1952 combined.

Considerable damage to plant equipment was recently reported at a Wisconsin gravel operation, where three teen-age youths had spent a Sunday morning riddling the equipment with bullet holes. Shots from .22 rifles had struck most of the equipment at the plant, including shooting holes in the windshields and head lamps of trucks, and puncturing tires and oil drums. The most extensive damage was done by bullet holes in a 500-lb. radiator which cooled the gas engine of the big crane. Pit operations had to be halted until repairs could be made, thus adding loss of business to the damage costs.

A number of highly dangerous dynamite blasting caps were recently found on a toy counter of an El Paso, Texas, store. The caps were believed to have been left in the store after being stolen from either the Hugh McMillan Co., or Southwestern Portland Cement Co., which both had previously reported the theft of a large number of blasting caps and dynamite.

WE HEAR

Construction contract awards, in the 37 states east of the Rockies, totaled \$14,749,649,000 for the first ten months of 1953, an increase of 5 percent over the comparable 1952 period, according to an F. W. Dodge Corp. report. Non-residential awards of \$5,803,671,000 were up 5 percent over the 1952 period, while residential awards of \$5,561,475,000 were down 3 percent, and heavy engineering awards of \$3,384,503,000 were up 19 percent. For the month of October, building awards surged 9 percent ahead of those of September, and 44 percent ahead of the October, 1952 awards. Heavy engineering awards of \$499,676,000 were up 11 percent over September and 110 percent over October, 1952; residential awards of \$634,582,000 were up 25 percent over September and 5 percent above October, 1952; and non-residential awards, totaling \$758,130,000, were down 3 percent from September but 61 percent higher than in October, 1952.

* * * * *

The entire route of the Buffalo-New York City section of the New York Thruway is now under construction, with the completion date scheduled for late in 1954. The Thruway, which is being constructed under the supervision of the New York State Department of Public Works, is expected to have an opening year total of 55,000,000 trips. Prospective gross revenues from tolls are expected to increase from an estimated \$19,000,000 the first year, to \$35,000,000 by 1965. Commercial vehicle toll revenues are expected to constitute about 62 percent of the total to begin with, increasing to about 72 percent by 1965. Construction plans and financing methods are currently being made for the other authorized sections of the Thruway. These will extend from Buffalo to the Pennsylvania border; from Buffalo to Niagara Falls; from a point near Albany to the Massachusetts border; and from New York City to the Connecticut border.

* * * * *

The average freight train, in the first six months of 1953, carried 1303 tons of revenue freight, compared with 1116 tons in 1943, according to Missouri Pacific Lines. Due to greater speed and efficiency, the average performance of a freight train increased from 16,997 ton-miles per hour in 1943, to 23,515 ton-miles in the first half of 1953, a gain of 38 percent.

* * * * *

According to Labor and Commerce Departments' estimates, railroad expenditures for new construction in the first ten months of 1953 amounted to \$391,000,000, compared with \$357,000,000 for the corresponding period of 1952. Expenditures for new construction in October, 1953, totaled \$49,000,000 as against \$48,000,000 in October, 1952.

* * * * *

As recently reported in Vermiculite News, a Boise, Idaho, home-owner found a new use for vermiculite when he successfully insulated and sound-treated his new rolled-steel bathtub with a coating of cement and vermiculite. The primary purpose was to kill the tub's hollow "ring" and give it the solid sound of a cast-steel tub. The cement-vermiculite mixture was applied over the entire bottom and sides and, to the surprise of the homeowner, the hollow ring was not only eliminated, but the insulating quality of the vermiculite kept the water in the tub at the same temperature for a much longer period than in a conventional tub.

* * * * *

In the annual report of the Smithsonian Institute, a British scientist reports that the known world reserves of suitable rock phosphates are estimated at 26,000,000,000 tons, and that possibly as much as 25,000,000 tons of phosphate per year are being used as fertilizers. With the increasing world population, and with each adult requirement estimated at 1 lb. of phosphorus per year, the scientist predicts that within the next 1000 years, the world may find itself without enough phosphorus necessary for plant growth. The greatest waste of phosphorus is said to be in soil erosion and in sewage.

* * * * *

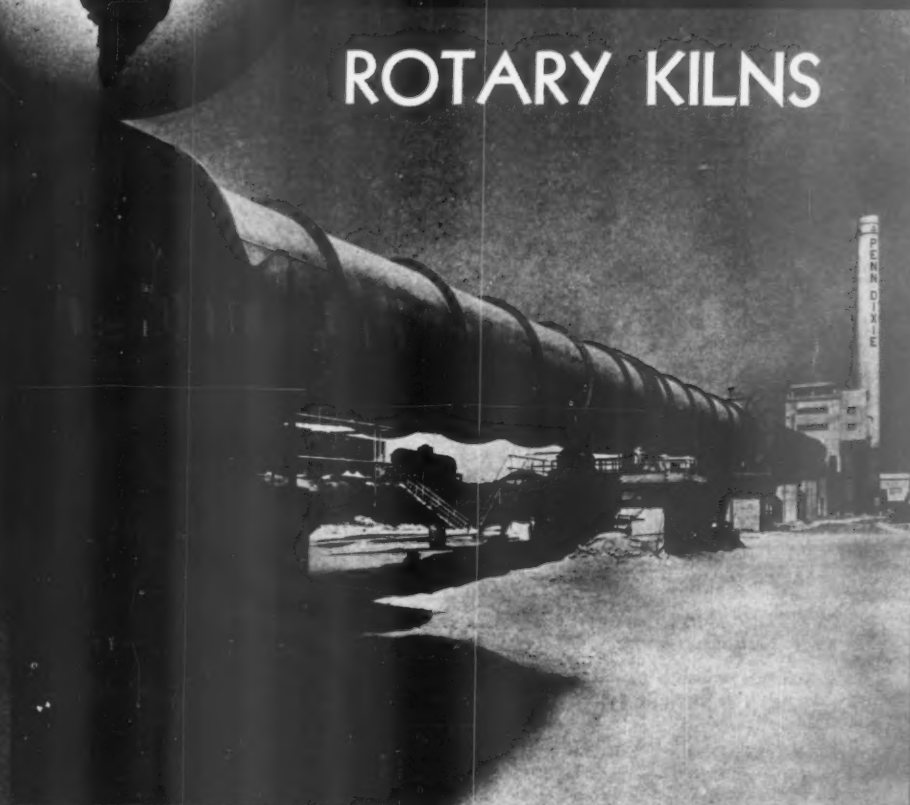
Increased earnings on the 327-mile Pennsylvania Turnpike have placed its entire bond-redemption program about seven years ahead of schedule, as recently reported in The Wall Street Journal. The turnpike grossed a record \$21,281,499 during the year ended May 31, 1953, and showed a net profit of \$7,631,700, representing a 32.2 percent increase in gross revenues over the preceding year. Vehicular traffic rose 28.5 percent during the 1952-1953 period. Since it was opened in October, 1940, more than 30,000,000 vehicles have paid approximately \$85,000,000 in tolls to travel the turnpike.

THE EDITORS



SMIDTH

ROTARY KILNS



Longest Rotary Kiln in the Western Hemisphere.

500 feet long, 12 feet in diameter.

**Designed and Furnished by F. L. Smidth & Co.
for Penn-Dixie at Kingsport, Tenn.**

For Smidth Machinery apply to:

F. L. Smidth & Co., A/S
Vestergade 33,
Copenhagen K, Denmark

F. L. Smidth & Co.
11 West 42nd Street
New York 36, N. Y.

F. L. Smidth & Co., Ltd.,
105, Piccadilly,
London, W. 1, England

F. L. Smidth & Cie France
80 Rue Taitbout
Paris (9e) France

F. L. Smidth & Co. of Canada, Ltd.
11 West 42nd Street
New York 36, N. Y.

F. L. Smidth & Co. (Bombay) Ltd.
42 Queen's Road
Bombay, India



Marion shovel, loading a 34-ton coal payload into one of 23 Austin-Western trailers powered by Dart tractors. Scene is at Midland Electric Coal Corporation's strip mine near Farmington, Ill.

ASF Safety 5th Wheels have to be tough to stand up in this heavy-duty service, especially during wet weather

when tractors are needed at each end of the semi to get it out of soft ground. Because ASF 5th Wheels are so easy to uncouple, in effect Midland has a *flexible pool* of load-carrying equipment and motive power, rather than 23 separate units. The result is fuller, more efficient use of available equipment.

Back and turn on a dime—In addition to quick interchange between motive power and load-carrying equipment, the tractor-trailer is highly maneuverable. ASF 5th Wheels are side-oscillating; even a full load can be safely and easily jacked-up for a short turning radius.

Heart of the semi—the ASF 5th Wheel—36" extra-heavy-duty ASF Safety 5th Wheel made for the rugged service and heavy loads found in off-highway work. Note the heavily reinforced plate; the massive "I" section center beam; the extra-strong mounting brackets.

He speaks through firsthand experience—M. R. Heckard, Superintendent of Equipment, has used ASF Safety 5th Wheels on all semi's for 11 years. He particularly likes the comparatively new 36" wheel shown at left; feels it will cut maintenance costs to a new low.



The Midland Electric Coal Corporation proves that your best investment for efficient tractor-trailer operation is an ASF Safety 5th Wheel...

"Best of all—they're easy to uncouple"

Ease of uncoupling is one of the big reasons why ASF Safety 5th Wheels are standard equipment on the fleet of semi's at Midland Electric Coal Corporation's strip mine near Farmington, Ill. M. R. "Marty" Heckard, Superintendent of Equipment, says:

"We use ASF 5th Wheels on all our semi's, and each wheel takes a real beating during the loading and hauling of a 34-ton payload around 30 times a day.

"One of the main reasons why we like these 5th Wheels is because they are easy to keep free of slack. We just add a shim usually once a year.

"Best of all, however, they are easy to uncouple in a matter of minutes. We can easily shop the tractor for maintenance without the trailer, or vice versa. Working on one at a time makes servicing easier, and we avoid tying up the whole semi."

Quick interchange between motive power and load-carrying equipment is a real asset in mining and quarry work. And there's no denying that you get it with a tractor-trailer. But a 5th wheel—or any hitching device—tends to defeat its purpose if it's hard to uncouple.

Easy uncoupling can save you time, trouble and expense, as it has in this modern strip mine operation. But, it's equally important to know that the ASF Wheel *only uncouples when you want it to uncouple*. This is no beefed-up highway wheel. It's made specially for heavy-duty off-highway service, from the "I" section center beam to the side-oscillating plate that absorbs the sidestrain of uneven roadway. Until a twist of the wrist releases the king-pin, it's built to *stay* coupled—come shocks, strains or high water!

Get the facts on the best 5th wheel investment you can make! See your nearest ASF Distributor, or write: American Steel Foundries, Automotive Division, 410 N. Michigan Avenue, Chicago 11, Ill.

remember this ... about

ASF

safety 5th wheels

Largest king-pin bearing area of any 5th wheel... Stresses absorbed by a larger bearing area—larger than any other 5th wheel—means longer life for king-pin and jaws.

Shorter king-pin bending leverage... Jaws grip the king-pin at the top. The pin *stays straight*—and can't "spring" or disengage.

Side oscillation protects equipment... 1½° of free oscillation—plus 5½° controlled by rubber stabilizers—absorbs sidestrain of uneven roadway.

Heavy, cast alloy-steel construction... Plate is hinged on strong, rigid "I" beam with big 2" pin. Extra large contact area between plate and beam doubles rocker life. Both rocker and cast-steel bracket are bronze-bushed to cut wear to a minimum.

Easy to maintain in perfect operating condition... Wear is inevitable, but on ASF Wheels, it's easily counteracted simply by inserting one or more low-cost shims between buffer and housing front wall. Result? Like-new service, without expensive rebuilding!

A quick glance tells you the lock is LOCKED...



LOCKED—as quickly shown by the lever and safety latch—which can *only be in these positions* when the jaws are truly locked.

UNLOCKING—with an easy twist of the wrist. Simply move the safety latch up, and pull the lever forward.

UNLOCKED—ready for uncoupling; parts in lockset position. *Handle can only move back to locked position when the jaws are locked in the next coupling operation!*



A 3,000-pound "compression-grip" saves your maintenance dollars...



COUPLING—as the king-pin enters the jaws, the jaws are forced back against the exclusive ASF rubber buffer block, building up compression.

COMPRESSING—3000 pounds are built up before the lock clears the rear jaw, allowing lock to snap to locked position.

LOCKED—and the jaws remain under compression. The grip is like a vise; eliminates the slack and backlash that can cost you money in added 5th wheel and king-pin wear.



Could **YOUR** shovel
pass this
test?



LOADING TRUCKS with sand and gravel, this Caterpillar No. 6 Shovel must often slug track frame-deep through abrasive muck. It's an extreme test of Caterpillar filters and seals, which protect factory-machined precision by keeping lubricants *in* and grit *out*.

It's also a test of the traction and balance of this newest shovel in the Caterpillar line. Tractor, engine and bucket are engineered as a unit so that tracks will not "dance" with even the heaviest loads. This No. 6 Shovel can work in areas too tight for a crane. "We decided on it from our previous experience with Cat® equipment, and because we needed one machine that would do several different jobs," says G. W. Bilzi of Heroes Excavating & Contracting Corp., East Meadow, Long Island, N. Y. The company is 75% standardized on Caterpillar products, with eight other Cat track-type Tractors.

Here are some of the other jobs this machine-of-many-uses can perform: load, stockpile, strip, 'doze, clean up and grade. It is compact and maneuverable for work in tight places. Controls are hydraulic for easy, accurate

operation, and mounted low for excellent operator visibility. The two-yard bucket is simultaneously raised and dumped *clean* for fast cycle time. Thanks to its exclusive fuel injection system, the rugged Cat Diesel Engine delivers full and *foul-free* power at a cost of only pennies per hour with money-saving No. 2 furnace oil.

Your Caterpillar Dealer will demonstrate *on the job* the shovel that will do most work for you at lowest cost. Talk over your needs with him today. And count on him—any time, anywhere—for fast, skilled service and dependable Caterpillar parts.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR®





ditor's

page

A Year of Opportunity Ahead

IN THIS ANNUAL REVIEW and outlook issue of **ROCK PRODUCTS** we present "The Basalt Rock Co. Story" as a special feature that we think very appropriate to the times. It is published as we enter a year that the experts predict will witness the setting in of intensive competition as companies try to hold the high volume of business needed to sustain profits.

All businesses, and the majority of producers in the rock products and concrete products industries, are turning increased attention to cost reduction, and plans for modernization of plants and equipment installations are being geared first and foremost with a view to increased efficiency. Price competition is setting in, according to many producers, and it is obvious that those most successful in reducing costs of production will be in best shape to meet the growing competition.

As we bring out by separate articles in this issue, progressive producers are preparing to spend more money to expand merchandising activities. They believe that honest-to-goodness salesmanship will result in not only maintaining a high level of sales to conventional customers but create new markets for their products.

Interest in diversification is growing fast, and it is surprising how many producers of standard commodities like sand and gravel, to pick an example, are finding and developing markets entirely new to them. They are starting to produce filter sands, engine sands, new asphaltic mixes, lightweight aggregates, "silica" sands, and are crushing or milling excesses into salable products. In other branches of these industries, where products are adaptable to treatment for more new uses, the diversification is more pronounced.

Basalt Rock Co. of Napa, California, produces a great variety of rock products and concrete products. It has built its success from a foundation of really creative ideas, which have been expanded into a widely diversified line of products. Acceptance for these products, many of which were entirely new to the building industries, has been gained through the kind of imaginative selling that could bring rich rewards to many producers who are now being faced with the problem of protecting their existing markets and expanding into new fields of application in order to keep their operations at a high level.

This company is an outstanding example, to be sure, but we believe that its principles of doing business should be an inspiration to many others in these industries. Over the years, it has con-

tinued to enter new fields and has faced up to competitive conditions far more difficult than those facing many producers today. The results have been spectacularly successful because the company would have it no other way.

The year ahead will apparently be a good one for business in these industries, judging from estimates of construction volume and comments from producers themselves, but it will inaugurate competition for business such as we have not seen for many years. It is the start of a period of opportunity for entrenching both standard and new products of the industries so that acceptance for them can be maintained for many years, provided that the threatened inroads of competitive materials be successfully met.

Prices charged for construction materials will be a factor as contractors and builders strenuously compete for contracts, which will in turn reflect in emphasis on production costs. There will have to be more attention paid to service and special incentives to buy so that contractors and builders can live up to their promises to give more construction for the money.

Most important of all will be the challenge to creative selling in order to create demands for products.

This will be an entirely new experience to many producers and is one phase of doing business that has gone too long neglected by many others who have been doing business for years. Like in any other industry, circumstances of abnormally high demands and shortages of competitive materials have resulted in greatly enlarged productive capacities in all branches of these industries. Relative newcomers have not yet had to ask anyone to buy anything so, in a sense, they must do some pioneering in the field of merchandising, in areas and fields where their products have been used thus far largely because they were the only ones available.

The economy is sound and the outlook ahead for business is good for many years, but it seems to us that much is at stake in 1954 and 1955 that will determine the proportionate share that various products of these industries will enjoy in the years beyond, as population continues to mushroom and create unprecedented demands for everything.

Bor Nordberg

PROUD OF YOUR PRODUCT?



Prove it
with **CHASE**
MULTIWALL
Paper Bags



Prove it to Your
Distributors and Dealers...



Prove it to Your Consumers



Prove it to Your Balance Sheet

Are you proud of the high quality of
your rock products?

You can give visible evidence of superiority by packaging
in CHASE Multiwall bags. This *preferred* bag is backed
by 107 years of CHASE experience...experience in developing
the finest material and workmanship...experience
in fine printing...experience in Multiwall bag
manufacture that assures CHASE customers
of **QUALITY** bags on every order.

IT'S THE PACKAGE THAT GIVES YOU THESE EXTRAS...

1. Better appearance.
2. Clean, colorful brand printing.
3. More sales appeal.
4. Better protection for your product.
5. A bag designed for your specific problem.
6. Better acceptance of your brand.



CHASE BAG COMPANY 309 WEST JACKSON BOULEVARD • CHICAGO, ILLINOIS

Rocky's Notes

NATHAN C.
ROCKWOOD

A New Text on Clay Minerology

RESearchers in cement and concrete are turning more and more to methods and techniques developed for clay research, such as are included under the terms structural or crystal chemistry, differential thermal analysis, ion exchange, and greater use of the electron microscope. Cement research began about the same time as soil and clay research, but clay scientists were quicker to recognize the limitations of ordinary inorganic chemistry and X-ray investigations; and to seek out and try new methods of study and experiment. Probably those most skilled in soil and clay research have been too few and too much interested in solving their own problems to reach out and apply their special knowledge to what is obviously the closely allied field of cement and concrete. The more we become familiar with work done on clays, scant as our technical knowledge of the subject is, the more convinced we become that concrete researchers are overlooking here a fruitful source of accumulated data, inspiration and helpful ideas for their own work.

The most recent textbook on the subject to come to our attention is "Clay Minerology"* by Ralph E. Grim, research professor of geology, University of Illinois. It is a book of 384 pp., and there is very little of it that would not be profitable reading for the cement and concrete researcher—or in fact for any reader who is seeking to get at fundamentals in the science of cement and concrete manufacture. Concrete literature, as everyone familiar with it knows full well, consists chiefly of a mass of largely undigested, inconsistent or conflicting reports of experiments and experiences on the performance of a non-uniform material under varying conditions of climate, rainfall, exposure, etc. Obviously there must be logical answers to these confusing reported results, more satisfying than those now available, and it should be equally obvious that the answers are to be found only in such fundamental sciences as will account for the internal structures of both the cementing paste or gel and of the minerals which may be used as aggregates.

*One of the McGraw-Hill Series in Geology, Robert R. Shrock, consulting editor, McGraw-Hill Book Co., 330 West 42nd St., New York 36, N.Y. Price \$9.00

Hence, any developments in those sciences which have been applied elsewhere with success, must sooner or later be adapted to research in cement and concrete.

Structural Differences

Most common clay mineral crystals are made up of layer structures. These, according to the textbook before us are: (1) Two-layer type (sheet structures composed of units of one layer of silica tetrahedrons and one layer of alumina octahedrons (kaolinite, halloysite, etc.); (2) three-layer types—sheet structures composed of two layers of silica tetrahedrons and one central di-octahedral or tri-octahedral layer (the expanding lattice type clays of the montmorillonite group). The three-layer types also include illite which does not have, for explainable reasons, an expanding lattice. (By "expanding lattice" is meant one that swells appreciably with the addition of water.) The chlorite clays have ordered stacking of alternate layers. (3) The chain-structure types (chains of silica tetrahedrons linked together by octahedral groups of oxygens and hydroxyls containing Al and Mg atoms—attapulgite, sepiolite and palygorskite.

Thus, apparently the structures of the ordinary garden variety of clays differ considerably from the structure of portland cement gels, so far as anyone knows their structure, since it has never been observed that cement gels have layer structures, although octahedral layers or flakes of the alumina constituent of hydrated portland cement have been observed at some stages of hydration. Apparently, the cement gel more nearly resembles attapulgite, sepiolite and palygorskite, which are relatively rare and not in commercial demand, because such electron micrographs of cement gels as have been published show the same kind of chain or fibrous structure found to be in these kinds of clay. Less work has been done with these kinds of clay, than with the expanding type, unfortunately, but what has been done shows that there are fundamental differences, besides those in the structures, as for example the manner in which the water is "bound." As we have attempted to show in articles in the August, 1953, and this current issue, that the

way in which water functions in set and hardened cement and concrete may be and probably is, quite an important factor in concrete durability.

Clay-Water System

So, although Prof. Grim provides in his textbook the elements of a basic knowledge of the principles of the structural chemistry of clay minerals, which all students of cement and concrete must sooner or later acquire, we will confine our review here mainly to what seems to us to be of the most direct present interest to the cement and concrete student—the chapters on the clay-water system. Just as is the case of cement gels, water occurs in at least two distinct characters. So one chapter is devoted to water that is lost or driven off from clay by heating to relatively low temperatures of 100 to 150 deg. C., and another chapter to water (OH lattice or hydroxyl water) which is driven out at temperatures above 300 deg. C. In the P.C.A. research on cement gels this distinction has been made as between "evaporable" and "nonevaporable" water. The author classifies water lost at low temperatures as (1) water in pores, on the surfaces and around the edges of discrete particles of minerals composing the clay materials; (2) in the case of montmorillonite-type clays, the inter-layer water between unit-cell layers of these minerals (the water that causes swelling); (3) in the case of the sepiolite-attapulgite-palygorskite minerals, the water that occurs in the tubular openings between the fibrous structural units. Type (1) water, our author says, requires generally little energy for its removal, but water of types (2) and (3) requires definite energy for its removal.

If we think of concrete as made up of mineral aggregates, just as clay is, but of course of indefinitely larger sizes of aggregate, we can see something of a parallel. Moreover, most clays are not made up wholly of clay minerals, which are colloids, but contain coarse particles such as sand or silt, so concrete is not made up wholly of cement gel, which is a colloid, but also of many much coarser particles. Hence, water is retained in concrete not only in the cement gel, but of course in the pores and on the surfaces of the aggregates. This retained water in clays has been extensively studied, and our present textbook contains an excellent digest of the results achieved. Evidently nothing like an equal amount of research has been done on the water retained in cement and concrete, although it would seem that equally interesting and helpful data could be so developed.

Nature of Adsorbed Water

Clay researchers have been especially interested in the thickness of these water layers, because obviously they have a very important bearing

(Continued on page 174)



NO *Detergents* USED HERE.. ONLY AN EAGLE WASHER

That material shown above is as clean as it looks—it provides quality aggregate for Tracy Rock & Gravel Co., Tracy, California, producers of concrete mix and road materials.

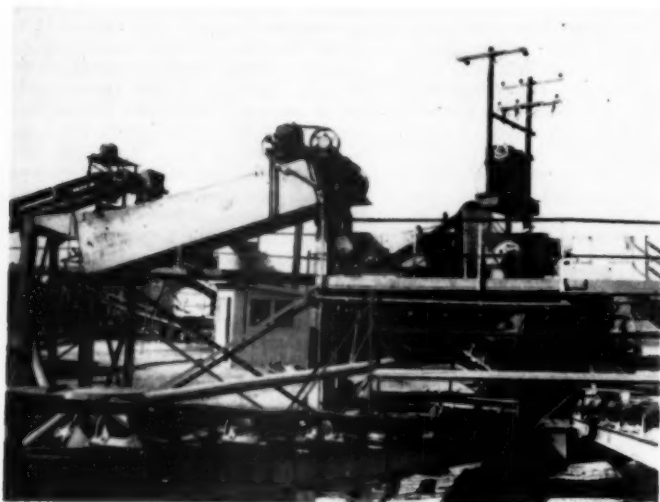
An Eagle Coarse Material Washer-Dewaterer with Trash Remover processes material for Tracy. Output averages 200-tons per hour.

The Trash Remover gets rid of shale and

debris. The paddles and screw flights of the Coarse Material Washer abrade and loosen the sand and gravel to free extraneous matter which is washed overboard. The clean material is conveyed up the drainboard and delivered to a screen dewatered.

The design and construction of Eagle Washing and Classifying Equipment is based upon long experience. Eagle Engineers have worked with producers over the years to give the industry practical, simple-to-operate equipment that insures maximum profits.

If you have a washing or classifying problem it will pay you to consult Eagle—wherever you are. Send for literature.



 Screw Washers
  Log Washers
  Clay Crushers
  Shale Planers
 

 Clay and Cinder Grinders
  Coal Crushers
  "Swivel" Dredge Ladders

LEADERS IN AGGREGATE
 WASHING AND CLASSIFYING EQUIPMENT
 FOR HALF A CENTURY
 137 H.C. COMB AVENUE
 DES MOINES, IOWA

EAGLE
 IRON WORKS

LABOR RELATIONS TRENDS

Heads of Labor Department and National Labor Relations Board Tell Views

By NATHAN C. ROCKWOOD

AS ALL WHO KEEP UP with national developments know, the new Secretary of Labor, James P. Mitchell, and the new Chairman of the National Labor Relations Board, Guy Farmer, have expressed their views, quite frankly, regarding enforcement of the Fair Labor Standards Act and the Taft-Hartley (Labor-Management Relations) Act. It is evident that their attitude is aimed to be entirely fair to labor unions but there is no evidence that they will at the same time be unfair to the public interest in order to curry favors from labor-union bosses.

Many producers in our industries believe that the previous administration stretched these two federal laws to aid communist schemers and to take in more territory than Congress designed to cover. Court decisions as to coverage have been conflicting, with the result that many producers in border-line cases have not known whether they were covered by the laws or not. The National Sand and Gravel Association and the National Ready Mixed Concrete Association, through their executive secretary, Vincent P. Ahearn, have kept up a continual effort to have the administrators of these laws clarify their meaning in regard to coverage in special cases. The latest development on this subject was issued by Secretary Ahearn on December 2, 1953, in his executive letter No. 833. With it he included a copy of a letter to him from the administrator of the Wage and Hour Division of the Labor Department, William McComb.

Wage and Hour Law Coverage

Secretary Ahearn interprets the contents of his correspondence, broadly, as follows:

"(a) No industry, *as such*, is either covered by or exempted from the law.

"(b) No company in any industry, *as such*, is either covered or exempted.

"(c) The law is geared to the nature of the work of the individual employee, and therefore some employees of a company may be covered while others are exempted.

"(d) If a particular company is engaged in producing materials for commerce within the meaning of the law and the official interpretations, all employees are covered unless specifically exempted.

"(e) There is a general exemption in the law for administrative and

executive employees, outside salesmen, and employees engaged in professional and technical work, for which an official interpretation has been issued."

Mr. McComb's letter to Secretary Ahearn contains the following paragraphs, which apparently explain the only limitations that will be applied in the cases of local producers who, incidentally, supply materials that are used in the construction and maintenance of avenues of interstate commerce such as highways and railways:

"Where employees produce and supply such materials for use within the same State in the maintenance, repair, reconstruction, improvement, *enlargement, or extension* of existing instrumentalities of interstate commerce, such as interstate highways, railroads, pipe lines, river and harbor facilities, airports, transportation terminals, telecommunication, and electric power systems; such employees may be covered as engaged in the production of goods for commerce in the sense that the materials are produced for use directly in the furtherance, within the particular State, of the actual movement to, from, or across such State of interstate commerce. For example, sand or gravel from a borrow pit opened expressly for the purpose of highway repair or reconstruction, or from the pits of an employer whose business operations are conducted wholly or in substantial part with the intent or purpose of filling highway contracts, would be produced for commerce. This basis of coverage, illustrated by the *Alstate* and *Hempt Bros.* cases, is further explained in sections 776.21 (a) and (b) of the coverage bulletin.

"This does not mean, however, that in every case where employees produce such materials for use within the State in the production of other goods for commerce, they are necessarily considered as closely related and directly essential to the production of goods for commerce. Nor does it mean that in every case where such materials are produced for use within the State in the maintenance, repair, or reconstruction of an instrumentality of commerce, that they are necessarily considered produced for commerce. A material supply company may be engaged in a business which is essentially local in nature, selling its goods to the usual miscellany of local customers without any particular intent or purpose of aiding pro-

duction of other goods for commerce, and without any substantial portion of such business being directed to the maintenance, repair, or reconstruction of instrumentalities of commerce. Employees of such an essentially local business are not covered by the Act merely because some of the customers will use the materials in producing other goods for interstate commerce or merely because, on occasion, the company happens to produce or supply some materials which are used within the State to meet the needs of instrumentalities of commerce.

"In determining in these situations whether an employer is engaged in an essentially local business a practical judgment is required. The following factors, among others, are given consideration: Whether the goods or services of a business are especially designed for use by instrumentalities of commerce or for use in the production of other goods for commerce; whether it uses equipment especially designed for servicing instrumentalities of commerce, or producers of goods for commerce; whether there is an effort to direct its services to such instrumentalities of commerce or producers of goods for commerce; and whether a substantial portion of its gross income is derived from supplying materials or services to such instrumentalities of commerce or producers of goods for commerce. These and similar factors would be indications of whether the business is conducted wholly or in substantial part with the intent or purpose of meeting the needs of interstate commerce or the production of goods for interstate commerce.

"It should be pointed out that this limitation on coverage under the essentially local business principle does not apply to coverage based on the actual production of goods for shipment in interstate commerce."

So much for Mr. McComb's statement of intentions towards narrowing the coverage of the law, which is very indefinite, at best. On the other hand we have a statement from Mr. McComb's boss, the Secretary of Labor, which reads in part:

"The studies which I have had prepared for me show that of these 40 million workers [other than farm operators, self-employed, etc.], about 18 million, or nearly half, were exempt from the terms of this law either because of the general language of the Act or because specific language exempted the industries or work places in which they were employed. Now, mind you, these 18 million people were in addition to the 20 million farm operators, and professional and other self-employed persons who were not covered by the law and were in addition to the almost 3 million in purely local businesses who were also not covered. This means that of the 63 million working people almost two-thirds have no Federal protection now against substandard wages.

(Continued on page 188)



Saves time...money All steel from one source

When you combine all your steel requirements on a single order to Ryerson you cut costs in many ways. One call—one order—save purchasing time and you also simplify bookkeeping—reduce clerical expense.

In addition, combining most carbon steel purchases under the Ryerson quantity differential plan brings further savings. And with larger quantities you often effect substantial reduction in freight on long hauls.

All these economies are possible when you call Ryerson for steel because Ryerson stocks are the world's largest and most diversified. Carbon steel, alloys, stainless—no matter what analyses you need, no matter what

shapes and sizes, you can be practically certain of getting them all with just one call to Ryerson.

You can be sure of prompt delivery, too. So next time you need steel, no matter how many kinds or sizes, call your nearest Ryerson plant.

PRINCIPAL PRODUCTS

CARBON STEEL BARS—Hot rolled & cold finished

STRUCTURALS—Channels, angles, beams, etc.

PLATES—Many types including Inland 4-Way Safety Plate

SHEETS—Hot & cold rolled, many types & coatings

TUBING—Seamless & welded, mechanical & boiler tubes

ALLOYS—Hot rolled, cold finished, heat treated

STAINLESS—Allegheny bars, plates, sheets, tubes, etc.

REINFORCING—Bars & Accessories, spirals, wire mesh

BABBITT—Five types, also Ryertex plastic bearings

MACHINERY & TOOLS—For metal fabrication

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CINCINNATI • CLEVELAND • DETROIT
PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

PEOPLE | in the news

Warner Appointments

IRVING WARNER, JR., formerly general manager, has been placed in charge of the sand, gravel and slag operations in the Morrisville area of Warner Co., Philadelphia, Penn. He succeeds Alexander Foster, Jr., who will devote his full time to the supervision of all retail yards in Philadelphia, Morrisville and Wilmington, and to marine transportation. Franklin K. Wills, general superintendent, has moved his headquarters from the Van Sciver plant to Pennsbury Inn in order to devote more time to future development of sand and gravel reserves. John M. Zelek, assistant plant superintendent, has been promoted to plant superintendent of Van Sciver and Terminal plants.

Mr. Warner joined the company in 1946 as an industrial engineer and one year later was appointed engineering assistant to Alexander Foster, Jr., in charge of marine transportation and maintenance. He became general manager of the Morrisville area in 1951.

Mr. Wills, a native of Delaware, is a graduate civil engineer of the University of Delaware. He joined the engineering department of the Charles Warner Co., Wilmington, 36 years ago. He was night superintendent of the Manor plant until the new plant was erected in 1924, when he became superintendent. After the Warner-Van Sciver merger in 1928, he was appointed general superintendent of the sand and gravel operations in the Morrisville area.

Mr. Zelek joined Warner Co. in 1947 as assistant to Franklin Wills, general superintendent. One year later he was promoted to assistant plant superintendent of Van Sciver and Terminal plants and the dredge Franklin. A native of western Pennsylvania, Mr. Zelek attended Pennsylvania State College to study mechanical engineering before enlisting in the Army Air Force in 1943. He was discharged in 1945 and continued his education, graduating in 1947 with a B.S. degree in mechanical engineering.

Sales Managers

C. R. HEILIG has been named sales manager of the central district sales office of Basic Refractories, Inc., Cleveland, Ohio, and G. W. Edwards has been appointed assistant manager. The new district comprises the Cleveland, Buffalo, Detroit, Valley and Ohio River steel producing areas. Mr. Heilig's office will also supervise agency sales on the West Coast, in

Canada, and also the export business. J. D. Hysong has been made sales manager of the midwest district, with offices at Gary, Ind., and St. Louis, Mo., to serve Chicago, Duluth, St. Louis, and southern-southwestern territories. D. B. Baxter, formerly service engineer, has been named manager of the eastern sales district office, which comprises Pittsburgh, Wheeling, Weirton, Philadelphia and New England, with headquarters in Pittsburgh and Philadelphia, Penn.

President Retires

BLAINE S. SMITH has retired as president of Universal Atlas Cement Co., New York, N.Y., and will be succeeded by Charles B. Baker, executive vice-president. Mr. Smith, who has been associated with the company for more than 37 years, will continue in a consulting capacity. A native of Alta, Iowa, Mr. Smith began his business career with the Chicago & North Western Railway in Chicago. He joined Universal Portland Cement Co., Chicago, in 1908, serving in various positions until 1928, when he became general sales manager, director and then vice-president. From 1928 to 1936, he was president of Penn-Dixie



Blaine S. Smith

Cement Corp., New York, returning to Universal Atlas as president and director in 1936. A director of the Portland Cement Association since 1925, Mr. Smith was president and chairman of the board of the association in 1925 and 1926. He is a past director and treasurer of the National Association of Manufacturers. He is also a member of the United States Chamber of Commerce, American So-

ciety for Testing Materials, American Iron and Steel Institute and American Road Builders Association.

Mr. Baker joined the company in 1942, becoming secretary in 1943 and general attorney in 1945. He was



Charles B. Baker

elected a director in 1944, and five years later was appointed assistant to the president. He was elected vice-president and general attorney in 1951 and executive vice-president in 1953. Born in Kenilworth, Ill., Mr. Baker was graduated from Phillips Exeter Academy in 1931. He attended Dartmouth College and was graduated from the University of Chicago Law School in 1938.

Lehigh Retirements

ROY N. YOUNG has retired as vice-president and operating manager of Lehigh Portland Cement Co., Allentown, Penn., and will be succeeded by P. A. Groll, formerly vice-president and assistant operating manager. John Young, director of employe relations, has retired and will be succeeded by E. D. Meredith, assistant director of employe relations. A. J. Johnson has been appointed vice-president and assistant operating manager. He was formerly assistant vice-president for operations. H. A. Butz, formerly credit and advertising manager, has been named treasurer. William M. Harbaugh has retired as chief engineer.

Council Trustee

L. A. BEEGHLY, president of the Standard Slag Co., Youngstown, Ohio, has been elected a trustee of the Mahoning Valley Industrial Council.

President A. G. Streblow of Basalt Rock Co.

MUCH OF THIS ISSUE is devoted to the Basalt Rock Co., Inc., Napa, Calif., and its dynamic president A. G. Streblow. Al Streblow's accomplishments, as an individual, in the concrete products and rock products industries are



Mr. and Mrs. A. G. Streblow

unmatched. He has pioneered many developments and products largely because he has been willing to gamble on the soundness of his ideas, and he has converted them into a well-diversified, substantial business and outstanding organization of men.

Al is a modest man so it required a lot of coaxing on our part over a period of several years before he would consent to the coverage which we have given his company in this issue. He insisted that we not make extravagant statements nor indulge in superlatives but we have not been completely successful in that. We couldn't be and still tell the factual story.

Al is a native of Napa, Calif., and was engaged in the hardware business before World War I, where he had an opportunity to learn how to install pumps and other equipment. After serving in the Navy he went to work for Yuba Manufacturing Co. selling tractors in Texas and throughout the southwest. He came back to Napa in 1922 and started the original quarry operation as a partnership.

In the early days capital was tight and he had to divide his time between running the quarry shovel and trying to sell stock so that operations might be enlarged. Mrs. Streblow stood side by side with him during that trying period and did her part to see it through. She cooked meals for contractors who were prospective buyers of crushed stone and performed many tasks to help get the business rolling. Through the years, she has been a constant source of inspiration.

Al Streblow's hobby is business whether it be that of the company or his cattle ranch 25 miles from Napa. When the office week is over he turns his attention entirely to run-

ning the ranch and riding the range. His specialty is beef cattle and he maintains a herd of about 1500. He owns 8400 acres, raises barley, alfalfa and permanent pasture, and leases grazing land.

Mr. Streblow is active in local affairs and has served as a director and president (1952) of the National Concrete Masonry Association. Concrete has always been considered the field that offered most challenge to his imagination.

The family home, called "Hilltop," is atop a mountain overlooking the city of Napa. It is a complete concrete masonry structure and a fine demonstration of the utility and versatility of the materials. In recent years, many a visiting fireman, including the editor, have been privileged to be a guest and—as if we needed it—have come away sold on concrete masonry construction.

The Streblows have a son and daughter. Jack has been undergoing sales training the hard way and now is in charge of the new precast division. The Streblows' daughter, Mrs. Thos. Konesgaard also has her home in Napa. The use of concrete masonry here, too, is emphasized even to the point of having a play house for the children built of Strecrete.

Joins Research Department

F. E. BRANTLEY, formerly with the Bureau of Mines, Washington, D. C., has joined the research department of the phosphate division of the Monsanto Chemical Co. in Anniston, Ala. A. J. Long has become associated with the sales department of the western division in Sacramento, Calif., and Merton W. Church, Jr., has become a member of the engineering department of the phosphate division plant in Trenton, Mich.

District Manager

CHARLES D. HARLESS has been appointed New York district manager of the National Gypsum Co., Buffalo, N.Y. He was formerly assistant district manager in New York. He start-

ed as a salesman and subsequently became commodity sales manager for rock wool insulation. Mr. Harless, who served with the United States Navy during World War II, is a past president of the Albuquerque, N. M., Junior Chamber of Commerce.

Named to Sales Post

JOHN F. HALL has been appointed assistant general sales manager of the North American Cement Corp., New York, N.Y. He was formerly New York district engineer for the Portland Cement Association, Chicago, Ill. He is a civil engineering graduate of Kansas State College, Manhattan, N.Y., and previously served as city engineer for Junction City and as an assistant in the Geary County engineer's office.

Association Officers

HARVEY H. BLACK, Domine Builders Supply Co., Inc., Rochester, N.Y., was elected president of the New York State Concrete Masonry Association, Inc., at its annual meeting in Syracuse on November 10. George Kogel, The Concrete Corp., Long Island City, N.Y., was elected vice-president; Grant N. Reinhold, Anchor Concrete Products, Inc., Buffalo, secretary; and John D. Daly, Auburn Cement Products Co., Inc., Auburn, treasurer. Elected to the board of directors, in addition to the officers, were Henry C. Quaritius, Jr., Nailable Cinder Block Corp., Brooklyn; William C. Homer, Barnes & Cone, Inc., Syracuse; and Arnold Cogswell, Standard Block Co., Inc., Troy. Frederick W. Reinhold, Anchor Concrete Products, Inc., Buffalo, was re-elected a director-at-large, and Garson Dinaburg, Dinaburg Block Co., Inc., Binghamton, past-president of the Association, remains on the board of directors.

William Markert, director of promotion, National Concrete Masonry Association, Chicago, Ill., was the principal speaker, and Ira F. Honoman, executive secretary of the Eastern Concrete Products Association, Lancaster, Penn., was guest speaker.



Left to right: Grant N. Reinhold, secretary; Harvey H. Black, president; and John D. Daly, treasurer of the New York State Concrete Masonry Association

Works Manager

A. M. CAITO has been appointed works manager at the Maple Grove and Bettsville, Ohio, plants of Basic Refractories, Inc., Cleveland, Ohio. He was formerly production manager. A graduate of Ohio State University, Mr. Caito joined the research and development department in Bettsville as a ceramic engineer in 1941. After three years' service in the Army Air Corps during World War II, Mr. Caito returned to the company in 1945 and was transferred to the production department.

General Manager

CHARLES W. DESGREY has been named general manager of operations of the United States Gypsum Co., Chicago, Ill. He was formerly operations manager of the western gypsum and lime region and will be succeeded in this position by J. H. Setinsky. C. H. Rosier, who was manager of the engineering department, succeeds Mr. Setinsky as general production manager of the insulation, metal, paper and roofing divisions.

Heads Dolomite Firm

CHARLES M. DAY was recently elected president of the Valley Dolomite Corp., St. Louis, Mo., to succeed B. P. Williams. Mr. Day was formerly vice-president and treasurer and will be succeeded in this position by Henry P. Day. Ben P. Donnell was named vice-president, and Charlotte Nichols, secretary.

Production Manager

LLOYD A. PFAFF has been named production manager of asbestos-cement operations of the Philip Carey Manufacturing Co., Cincinnati, Ohio, which he joined in 1947. A graduate of the University of Illinois, Mr. Pfaff was formerly associated with The Asbestone Corp. and The Ruberoid Co.

Named Director

ELWELL C. CASE has been elected a director of Pioneer Sand and Gravel Co., Inc., Seattle, Wash., according to an announcement by Gordon N. Scott, president of the company. Mr. Case is a partner in the insurance brokerage firm of Graw, Kittinger and Case.

Development Engineer

JOSEPH J. SHIDELER has been appointed development engineer at the research and development laboratory of the Portland Cement Association, Chicago, Ill. He was formerly with the U.S. Bureau of Reclamation, Denver, Colo.

Chief Engineer

CLYDE E. HAAGER has been appointed chief engineer of the Ohio Concrete Pipe Manufacturers Association,

Columbus, Ohio. He was formerly construction superintendent and engineer for the Christopher Construction Co. R. F. McFall of the United States Concrete Pipe Co., Cleveland, is president of the association; A. S. Langenderfer, president of Cincinnati Concrete Pipe Co., is vice-president; and A. G. Cochran of the Universal Concrete Pipe Co., Columbus, is secretary-treasurer. G. E. Bing, Cleveland; William Knierim, Dayton; and L. J. Loughlin, Toledo, are directors.

Consulting Engineer

HAROLD H. WHITE, consulting engineer for The Vibration Engineering Co., Hazleton, Penn., also has a private consulting practice in Joplin, Mo., under the name of Industrial Seismology, giving individual attention to vibration problems and explosives effects research. Dr. L. Don Leet is president of the Vibration Engineering Co. and Robert L. Klotz, through his purchase of the partnership shares of A. L. Ladner, W. C. Kimball and J. W. Wallace of Houston, Texas, is manager. Headquarters for the engineering company have also been established in Seattle, Wash., and Portland, Ore., with Dr. Leet in charge of problems that might arise in seismology and Mr. White in matters pertaining to engineering and explosives.

Panel Moderator

T. H. KASNER, works manager of the Sweetwater, Texas, plant of the United States Gypsum Co., Chicago, Ill., was moderator at a recent College Town Hall panel in San Angelo, Texas, at which representative businessmen answered questions on free enterprise and socialism in the United States. Questions were asked by members of the student body on depressions, monopolies, taxes, patents, and other subjects relating to free enterprise or socialism.

Life Member of Engineers

JACOB B. ZOOK, plant manager of the Buffalo, N.Y., plant of the Lehigh Portland Cement Co., Allentown, Penn., was recently presented a life membership in the American Society of Safety Engineers by the Niagara Frontier chapter of the society. Mr. Zook, who became chief engineer and safety director of the Great Lakes Portland Cement Corp. in 1926, is the first western New Yorker to be so honored.

Heads Concrete Firm

JERROLD OAKLEY of Mahwah, N.Y., has been appointed president of Walker Cement Products Co., Little Ferry, N. J. Formerly vice-president of Samuel Braen, Inc., he recently gained control of the Walker partnership and is now its chief stockholder.

Committee Chairman

GRANT METZGER, superintendent of the San Andreas, Calif., plant of Calaveras Cement Co., San Francisco, Calif., has been elected chairman of the Calaveras County Committee on School Reorganization in the Calaveras Union High School.

Plant Manager

JOHN H. WYCKOFF, engineer at the Steilacoom, Wash., plant of the Glacier Sand and Gravel Co., Seattle, Wash., has been appointed plant manager to succeed Frank I. Heffernan, who died suddenly on August 28.

Appointed Superintendent

CHARLES REGAN has been appointed superintendent of the Louisville Cement Co. of New York, Inc., Akron, N.Y., a subsidiary of the Louisville Cement Co., Louisville, Ky.

Alumni Executive Board

DEFOREST S. COLBURN, executive vice-president of the Marquette Cement Manufacturing Co., Chicago, Ill., was recently elected president of the executive board of the Lake Forest College Alumni Association.

Assists Operations Director

MONTAGU HANKIN, JR., has been appointed assistant to the director of operations at the Summit, N. J., plant of the North Jersey Quarry Co., Morristown, N. J.

Candidate for City Council

SAM SMITH, manager of the Greenville, Miss., office of the United States Gypsum Co., Chicago, Ill., has become a candidate for the City Council of Greenville.

OBITUARIES

GAYLORD E. GRAY, operator of the Central Iowa Sand and Gravel Co., Des Moines, Iowa, died recently at the age of 60.

CURTIS WHITTLESEY MCGRAW, a director of Dragon Cement Co., Inc., New York, N.Y., died suddenly on September 10. He was 57 years old.

DAVID S. BROADFOOT, former president of the Southern Sand and Gravel Co., Columbus, Ohio, died November 30. He was 80 years of age.

CORTNER M. HARDY, president of the National Industrial Sand Association, Washington, D. C., died suddenly at his home on December 7.

WILLIAM E. MESSNER, manager of the sand plant at Del Monte Properties Co., San Francisco, Calif., died on November 10 after a short illness. He had been associated with the company since 1950, starting as assistant manager of the plant.

SEAL OUT THAT DIRT!



YOU CAN EASILY and effectively protect bearings against dirt. Just lubricate with *Texaco Marfak*. This remarkable adhesive-cohesive lubricant—the world's finest protection against wear and rust—*stays in* the bearings, seals out both dirt and moisture. With *Texaco Marfak*, bearing life goes up and maintenance costs come down.

In wheel bearings, you get the same fine protection with *Texaco Marfak Heavy Duty* — and no seasonal change is ever necessary. Enjoy extra thousands of miles of protection between repackings, longer

bearing life and greater braking safety.

For crawler tracks, use *Texaco Track Roll Lubricant*. It keeps out the elements that cause wear and rust, adds greatly to roller life.

Let a Texaco Lubrication Engineer explain the Texaco Simplified Lubrication Plan — how you can handle *all* major lubrication with *no more than six* Texaco Lubricants. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

**MORE THAN
500
MILLION
POUNDS OF
TEXACO
MARFAK
HAVE BEEN
SOLD!**



TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

TUNE IN . . . METROPOLITAN OPERA radio broadcasts every Saturday afternoon. See newspaper for time and station

Cover Picture

THIS MONTH'S COVER shows the Basalt Rock Co., Inc., crushing and screening plant at Napa, Calif., after undergoing extensive modernization. The plant is near the site of the original quarry operations from which the widespread Basalt enterprises have stemmed. In this issue is the complete story about these interesting operations and plants which now also include, sand and gravel, ready-mixed concrete, lightweight manufactured aggregates, concrete products, precast houses, prestressed concrete, concrete pipe, steel pipe and products, and shipbuilding.

Florida Phosphate Sales

SALES OF FLORIDA PHOSPHATE in 1952 amounted to 8,781,125 long tons, valued at \$51,541,799, an increase of over 3 percent in both value and volume, as announced by the Florida Chamber of Commerce. The 1952 sales reportedly more than tripled the 1940 figures.

In 1940, Florida produced 65 percent of the national volume of phosphate. In 1951 and 1952 the Florida percentage increased to 77 percent of national production. Other important phosphate-producing states are Tennessee, Idaho, Montana, Utah and Wyoming. Approximately 100,000 tons, valued at \$2,400,000, were imported from foreign countries in 1952. Sixty-eight percent of the U. S. production went into the manufacture of superphosphates, used primarily as a fertilizer; 13 percent was exported; 10 percent was applied directly to the soil as a conditioner; 9 percent, other uses.

Ideal's Farm-Rebuilding Program on TV

IDEAL CEMENT CO.'S farm-rebuilding program, launched last fall on lands adjoining its Boettcher plant, near Denver, Colo., was recently featured on the "Industry on Parade" series of the National Association of Manufacturers. The film, which was shown over nearly 100 TV stations in this country, Hawaii, in eight or nine foreign countries and in hundreds of schools and colleges, included pictures of the harvesting of field corn and

storing of ensilage in pit silos; fall fertilizing; new feed yards constructed for feeding of cattle; and fall irrigation of new seedlings of alfalfa.

Ideal Cement Co. has three irrigated farm units and several thousand acres of dry land near its Boettcher plant. The rebuilding program has included land leveling, re-alignment of irrigation systems, irrigation of new lands, repair and remodeling of farm buildings, construction of feed yards, and an extensive fertilizing program.

Rotary Kiln Patent

VICTOR J. AZBE, Azbe Corp., St. Louis, Mo., has been granted U. S. Patent 2,653,809, on rotary kiln designs, as recently announced in *Lime-graphs*. A number of drawings are included in the patent, covering the end-wise and calcining zone cross sections of the kiln; the stone preheater and dust collector at the inlet; the lime cooler and discharge end of the kiln; and an overall drawing of the kiln completely equipped.

Pavement Yardage

AWARDS OF CONCRETE PAVEMENT for the month of November and for the first eleven months of 1953 are listed by the Portland Cement Association as follows:

	Sq. yd. awarded During November 1953	During first 11 months 1953
Roads	1,773,817	38,020,150
Streets and alleys	1,384,161	24,151,446
Airports	100,024	9,791,933
Totals	3,258,002	71,963,529

Acquires Gravel Concern

INTERSTATE SAND AND GRAVEL CO., Covington, Ind., has purchased the capital stock of Neal Gravel Co., Mattoon, Ill., which operates plants at Attica, Cayuga and Covington, with offices at Mattoon. A sales office will be maintained at Mattoon, but the

main office will be moved to Covington. John P. Canton, who has been sales manager for the Neal firm for the past 35 years, will continue in that capacity. Fred P. Steinberg will continue as general plant supervisor, the position he has held for 29 years. E. H. O'Brien is president of Interstate Sand and Gravel Co., and Tom A. McGurk is secretary-treasurer.

Company Merger

FORT WORTH SAND & GRAVEL CO. and Texcrete Co., Fort Worth, Texas, have announced a combining of operations, with the objective of improved and expanded service to customers of both firms. Announcement of the merged organization was made jointly by Ralph B. Rogers, president, Texas Industries, and T. E. Popplewell, president, Fort Worth Sand & Gravel Co.

Also announced was the election of George A. Meihaus, formerly president and general manager of the Texcrete company, as a vice-president of Fort Worth Sand & Gravel Co. His primary activity will be in sales and distribution. Other members of the executive staff, besides Mr. Popplewell and Mr. Meihaus, include Charles E. Marshall, executive vice-president, and John C. Stewart, sales manager.

Combined operations will provide a coordinated network of seven plant and warehouse locations in the Fort Worth area. The merger of the two organizations is expected to result in faster, more flexible service, together with greater personal attention to industrial requirements. The company's production now includes ready-mixed concrete, Texcrete masonry units, crushed stone, sand and gravel, lightweight aggregate, and Sakrete. The company also handles cement, masonry paint, plaster, metal lath and accessories, form ties, metallic floor finishes, expansion joints and other construction materials.



Left to right: Charles E. Marshall, Ralph B. Rogers, T. E. Popplewell, and George A. Meihaus

New Agstone Association

THE WISCONSIN AGLIME PRODUCERS ASSOCIATION is a new association formed by a group of over 60 Wisconsin agricultural limestone producers who met in Madison, Wis., November 23, 1953, for organizational purposes. Loren D. Nellis, Nellis Limestone quarry, Inc., Ripon, Wis., was elected the first president. Other officers are: Stewart Watson, Winger Stone Co., Madison, vice-president; Charles Coburn, Waukesha Lime & Stone Co., Inc., Waukesha, Wis., secretary; and Ervin Ellefson, Ellefson Bros., Viroqua, Wis., treasurer.

The following day, the group met with the Wisconsin A.S.C. committee, as well as representatives of the College of Agriculture and the Soil Conservation Service, for the purpose of discussing the 1954 Agricultural Conservation Program. Also in attendance was Robert M. Koch, executive secretary of the National Agricultural Limestone Institute, who discussed the national program.

To Reopen Stone Plant

JOHN BALDUCCI, Gouverneur, N.Y., owner of the Balducci Crushed Stone Co. plant that was destroyed by fire last August, has announced that the rebuilding of his plant is underway and operations are expected to be resumed in a few weeks. Crushed stone, agricultural limestone and terrazo floor chips will be produced at the new plant.

Talc Production

MINE PRODUCTION of talc, pyrophyllite and ground soapstone in the United States declined 6 percent in 1952, from the record-high output attained in 1951, as reported by the Bureau of Mines. Although the quantity of these materials sold by producers decreased 7 percent, their values increased to \$11,347,317, a new

high. The ceramics, paint, insecticides, rubber, roofing and paper industries consumed 83 percent of the domestic production and, as in 1951, New York, California and North Carolina ranked first, second and third, respectively, in production and sales of these materials.

New Perlite Processors

GREAT LAKES CARBON CORP., Perlite Div., recently announced that two companies in Texas and one in Colorado have been granted "Permalite" franchises. The companies are: Percolite Products, Inc., Denver, Colo., of which Herman O. Freudenberg is president, and E. F. Dillon, technical sales manager; Perlite of Houston, Inc., Houston, Texas, with William F. Smith as president, and Ben A. Brallier, secretary; and Texas Lightweight Products Co., Irving, Texas, headed by Sherman W. Johnson. Sales for the latter company will be handled through Dunne Co., Dallas, Texas, under the direction of William P. Dunne, assisted by Dale A. Lehr and J. A. Weaver.

Marquette Purchases Two Cement Companies

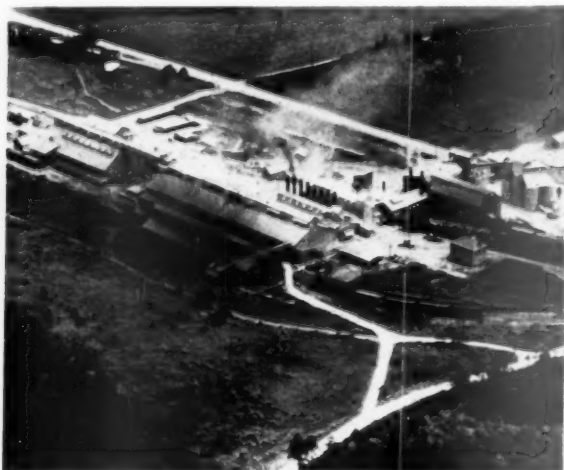
MARQUETTE CEMENT MANUFACTURING CO. has announced outright purchase, effective January 1, 1954, of the Superior Cement Division of the New York Coal Co., which includes the plant at Superior, Ohio, and of Southern States Portland Cement Co., with its plant at Rockmart, Ga. Acquisition of these properties will rank Marquette among the five largest cement companies in the country. Both the Superior and Southern States transactions were closed for a total purchase price of \$5,602,000, exclusive of working capital and inventories.

Both the Superior and Southern States companies will continue in business, differing only in new incorpora-

tion as wholly owned sales subsidiaries of Marquette. They will continue to operate under their original policies, brand names and with essentially the same personnel. The plants of each company will, however, be operated by Marquette, oldest cement manufacturing concern in the Mississippi Valley and recognized as one of the most progressive and rapidly growing companies in the cement industry. These acquisitions will increase Marquette's annual cement producing capacity by approximately 2,000,000 bbl. equally divided between the two plants, and expand its marketing area to include the industrially rich and growing Ohio and Kanawha River Valleys (Ohio, West Virginia and Kentucky) and all of the state of Georgia.

The Superior plant, located 15 miles east of Portsmouth, Ohio, has been in continuous operation since 1907. It is currently producing at the rate of approximately 800,000 bbl. annually. Marquette announced plans to increase annual production there by 200,000 bbl. within the year. To handle this output, a sales subsidiary, to be called Superior-Marquette Cement Co., will be immediately organized and will have its headquarters in Portsmouth, Ohio. W. B. Carter, formerly head of the sales staff for the Superior Cement Division, will continue as sales manager for this new subsidiary of Marquette.

The Southern States Portland Cement Co. also will be operated henceforth as a sales subsidiary of Marquette, but its headquarters will be moved from Rockmart, Ga., to new quarters in downtown Atlanta. W. B. Elcock will continue as president of this company. J. O. Lane, formerly acting sales manager, has been appointed sales manager there. The Southern States plant at Rockmart has been in continuous operation since 1902. Now under Marquette, annual



Left: Newly acquired Superior, Ohio, plant of Marquette Cement Manufacturing Co. Right: Former Southern States Portland Cement Co. plant at Rockmart, Ga.

production there will be increased from the current 800,000 bbl. to approximately 1,000,000 bbl., it was announced.

Both the Ohio and Georgia plants will be immediately and substantially improved in a \$3,580,000 modernization program authorized by Marquette's Board of Directors at the time of purchase.

Within little more than a decade Marquette Cement Manufacturing Co. has grown from a three-plant organization into a multimillion barrel network comprising eight producing plants, two shipping plants, nine sales offices and five wholly owned subsidiary companies covering the central and southern states.

Portland Cement Production

PRODUCTION OF PORTLAND CEMENT in October, 1953, totaled 24,738,000 bbl., as reported to the Bureau of Mines. This was an increase of 2 percent compared with the October, 1952, figure. Mill shipments totaled 27,556,000 bbl., an increase of 1 percent from that of October, 1952, while stocks were 53 percent higher than on the same date a year ago. Clinker production during October, 1953, totaled 23,874,000 bbl., an increase of 3 percent from the October, 1952, clinker output. The production of finished portland cement during October, 1953, came from 156 plants located in 37 states and in Puerto Rico, compared to 155 plants which produced 24,164,000 bbl. during the month of October, 1952.

To Open Gypsum Quarry

NATIONAL GYPSUM Co., Buffalo, N.Y., is developing what it believes to be the largest gypsum deposit in North America, located in the wilds of Nova Scotia, about 30 miles northwest of Halifax, according to a company official. Development of the deposit, which will include new dock facilities in Halifax, will cost approximately \$5,000,000. The company's gypsum quarries near Dingwall, Nova Scotia, will be closed when the new deposits have been fully exploited.

Gravel Plant Expanded

WESTERN INDIANA GRAVEL Co. has made extensive improvements at its Montezuma, Ind., sand and gravel plant, which are expected to increase the plant capacity from 90 t.p.h. to 150 to 160 t.p.h. The expansion program was begun in December, 1950. C. F. Rohr is the plant superintendent and T. V. Thomas is assistant superintendent in charge of sales.

Closes Lime Plant

UNITED STATES GYPSUM Co., Chicago, Ill., recently announced the permanent closing of its Evans, Wash., lime plant. The plant equipment has been sold, but the office building, three

smaller buildings and the plant site are being retained by the company. The plant, which employed between 40 and 50 men, had been closed for several months due to a strike. After several attempts at settling the strike had failed, the company announced it would abandon the operation. Company officials stated that the plant had operated several years on a narrow margin of profit.

Asbestos Company

LAFAYETTE ASBESTOS Co. LTD., Montreal, Que., has secured the greater part of an estimated \$2,000,000 needed to put its mill into production, as announced by Henri Crepeau, president of the firm. It had been proposed to increase the company capital by 1,000,000 shares in order to finance the development, but it will not be necessary now.

Ballast Plant

TWIN MOUNTAIN ROCK Co. has started production of railroad ballast at its new plant at Des Moines, Iowa.

Correction

IN THE ARTICLE on the Skanska Cement AB, Hellekis, Sweden, cement plant, which appeared in the September issue, p. 79, halfway down the first column, it reads: "The average consumption over a period of months, including several shutdowns, has been about 490,000 B.t.u. per bbl. . . ." The figure should read: "590,000 B.t.u. per bbl. . . ."

California Cement Shipments

SOUTHERN CALIFORNIA CEMENT PLANTS have reported a total shipment of 1,450,773 bbl. of cement and clinker in October, compared with 1,438,117 bbl. in September and 1,676,948 bbl. in October, 1952. At the end of October, 897,218 bbl. were on hand, against 914,337 bbl. at the end of September and 1,122,406 bbl. at October 31, 1952. The cement order backlog was 1,849,135 bbl. at October 31, 1953, compared with 2,138,393 bbl. at the like date in 1952.

Coming Conventions

February 8-11, 1954—

National Concrete Masonry Association, 34th Annual Convention, Shoreham Hotel, Washington, D. C.

February 14-18, 1954—

American Institute of Mining & Metallurgical Engineers, Annual Meeting, New York, N.Y.

February 15-19, 1954—

National Ready Mixed Concrete Association, 24th Convention and Exposition, Conrad Hilton Hotel, Chicago, Ill.

February 15-19, 1954—

National Sand and Gravel Association, 38th Convention and Exposition, Conrad Hilton, Chicago, Ill.

February 18, 1954—

National Agricultural Limestone Institute, Board of Directors Meeting, Blackstone Hotel, Chicago, Ill.

February 19-20, 1954—

National Agricultural Limestone Institute, Annual Convention, Blackstone Hotel, Chicago, Ill.

February 22-25, 1954—

American Concrete In-

stitute, 50th Annual Convention, Denver, Colo.

February 22-24, 1954—

National Crushed Stone Association, 37th Annual Convention and Manufacturers Division Exposition, Conrad Hilton Hotel, Chicago, Ill.

February 24, 1954—

American Concrete Agricultural Pipe Association, 4th Annual Convention and Meeting, The Fairmont Hotel, San Francisco, Calif.

February 25-27, 1954—

American Concrete Pipe Association, 46th Annual Convention and Meeting, The Fairmont Hotel, San Francisco, Calif.

March 15-16, 1954—

Indiana Mineral Aggregates Association, Annual Meeting, Claypool Hotel, Indianapolis, Ind.

April 20-22, 1954—

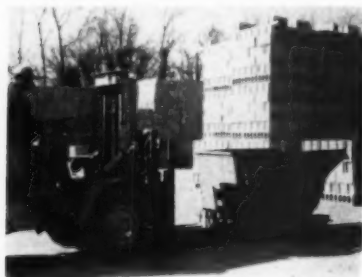
National Industrial Sand Association, Spring Meeting, Boca Raton Hotel, Boca Raton, Fla.

HINTS and HELPS

PROFIT-MAKING IDEAS DEVELOPED BY OPERATING MEN

Cleaning Up Bucket

A CLEAN UP BUCKET, handled by a fork lift truck, is used by an eastern concrete masonry plant to promote



Clean up container handled by fork lift truck

good housekeeping. Receptacles similar to the one shown are scattered strategically around the yard and plant building. The units can be dumped easily. They were made for the company by the Roura Iron Works, Detroit, Mich.

Dust Filter on Truck

IN THE ILLUSTRATION, bulk portland cement is being unloaded, using the L.C.L. Corp.'s air activated containers on the railroad car. The bag filter over the cement haulage truck prevents any dust from getting to the atmosphere. This is important as there is a meat processing establishment adjacent to the unloading point and new automobiles are nearby.

The illustration is a view taken at a railroad terminal in Brooklyn, N.Y., and the truck delivers to Long Island. By taking delivery where a lower freight rate applied, considerable

money was saved. The L.C.L. Corp. system of handling bulk cement is built around the use of containers in which air jets activate the material, causing it to assume the properties of a liquid. Means are provided in the bottom of the container to eject the dry cement through a suitable pipeline to overhead bins, if so desired. The operation is noiseless and dustless. The containers are not leased or sold; all the user has to supply is the source of compressed air, the pipe line, and fittings from the container to bins. The railroad that hauls the containers foots the bill.

Lubrication Made Easy

WITH THE OIL INDUSTRY offering better lubrication methods and lubricants, it might be questioned whether the rock products industry is doing its share to take up the burden where the oil companies leave off by providing workmen with modern facilities with which to lubricate machinery.

As nearly all sand and gravel and crushed stone producers have their own trucks and ready-mixed concrete mobile equipment, the superintendent of the plant is more often in the garage than in the plant or his office. Maintenance and repairs are the "big effort" in these operations, and it would be trite to observe that proper lubrication could cut down this costly item.

One operator in the Southwest realized this fact and supplied the maintenance department with the latest word in lubrication facilities to make the job easier and more pleasant for the men doing this work. Near the approach to the grease pit, the fuel supply section was not overlooked.



Lubrication and fuel dispensing station operated by sand and gravel company

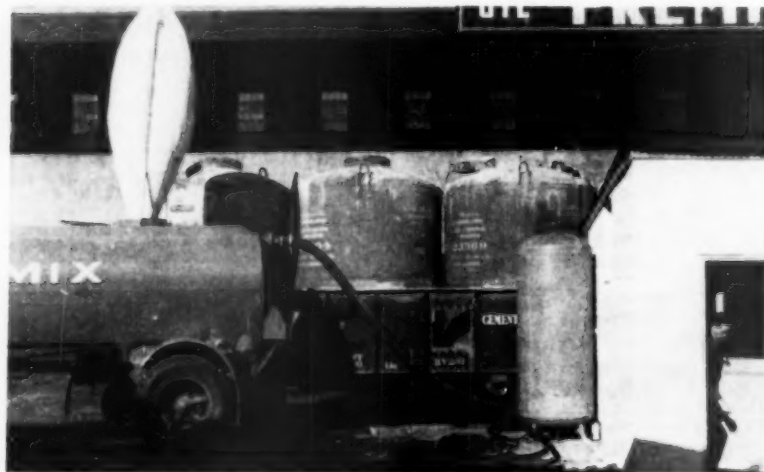
Pumps were conveniently arranged and protected with concrete buffer-pilasters striped with colored bands.

Cone for Sand Recovery

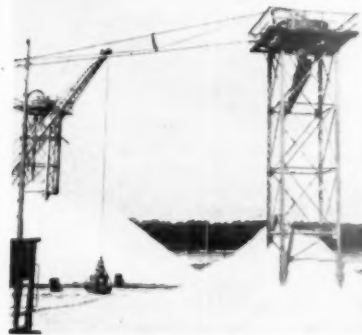
SOME YEARS AGO, sand producers were familiar with the advantages of an Allen cone for the recovery of sand, but the trend in recent years has been towards the use of other types of classifying and dewatering units and the cone of this type has been possibly overlooked.

The Allen cone is a center-fed sheet iron cone with a peripheral overflow for slimes and water. A system of linkage outside of the cone plus a float mechanism that opens or closes a ball valve mechanism at the outlet opening controls the ejection of sand.

In the illustration, Link-Belt Shaw classifiers ahead of the cones make the first separation after which the material is sent to individual cones. Excess water from the sand produced by the cones drains away as the footings at this installation are on a sandy soil. Movable spouts under the outlet permit the sand to be built up into a pile of considerable size.



Cement haulage truck equipped with bag-type dust filter

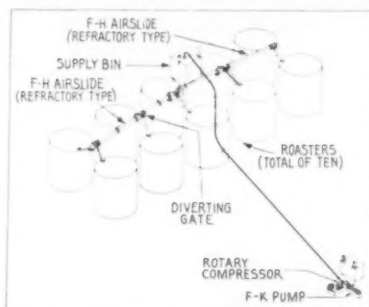


Two cone installations on towers for the recovery of sand

Handling Hot Dusts

A PNEUMATIC CONVEYING SYSTEM for recovering and returning hot dusts to roasting furnaces for re-processing has been installed at the Noranda Smelter, Noranda, Quebec. The system, which may be of interest to other processors faced with the problem of handling hot dusts, returns the dust to the furnaces while hot, thus effecting a more efficient roaster operation (in this case, roasting of metallic sulphides).

Dust, at temperatures of from 500 to 800 deg. F., is recovered at the Noranda mines by Cottrell precipitators, and is gravity-fed from a hopper into a Fuller-Kinyon pump. A



Schematic drawing showing conveying system for handling hot dusts

screw element of the pump feeds the dust into an air-mixing chamber in which it is made fluent by compressed air. From the mixing chamber, compressed air at 15 p.s.i. delivers the dust, through a conveying line, to a supply bin located above the roasters.

Dust is fed uniformly from the supply bin to ten roasters by means of an F-H Airlslide. The Airlslide comprises an enclosed inclined porous medium (in this case, refractory aluminum oxide) which supports the stream of dust. The dust is sufficiently fluidized, by low-pressure air passing through the aluminum oxide, so that gravity causes it to flow. A special feature of this installation is the use of a refractory (aluminum oxide) as the porous medium. For most applications at normal temperatures, a fabric is used for this purpose, but the high temperatures encountered in this installation requires a refractory material.

As a result of the successful operation of this installation two other mining firms reportedly are installing similar systems. The system was developed by Fuller Co., Catasauqua, Penn.

Field Conveyor System

AN EASTERN SAND AND GRAVEL plant has two field belts that finger out from a transfer station near the plant. Each leg of the conveyor is several hundred feet long. The purpose of the two belts is to send a blend



Field conveyor construction permits belt assembly to operate over rough terrain

of two materials into the plant from two different locations in the pit. Sand is the main aggregate produced. The illustration shows how the carrier and return rolls are mounted. Shaped somewhat like an 8-in. channel iron, it has a base about 4 in. wide. Two return rolls and three carrier rolls are used. As excavating proceeds, a piece of belt is spliced into the unit and another conveyor assembly inserted. The units are heavy enough so as not to move easily. The two belts travel over relatively uneven ground and this type of construction requires no special ground leveling.

Impact Crusher as Secondary

IMPACT TYPE CRUSHERS were originally used as primary reduction units. The larger machines, such as the 50-50, were designed to receive a 50-in. cube and reduce it to 4 in., either in one pass or by a circulating load of the plus fraction from a scalper screen. On limestone and dolomite they have been particularly effective,

and some producers have shown a low maintenance cost even though the silica content may be relatively high. However, it should be determined if it is present as quartz or some softer silicate. A straight chemical analysis does not differentiate between the two types of rock.

More recently, impact crushers have been used in Texas, Pennsylvania, and other localities as secondary crushers, competing with hammer mills. When used for secondary crushing, it has been found advantageous to have a variable speed drive on the unit as varying the speed governs the character of the products made.

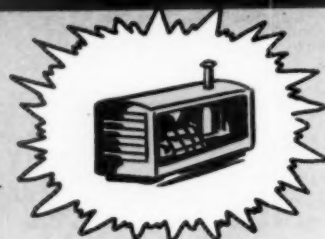
One producer, with a 50-50 machine, removed the bearings from the housing assembly and mounted them on reinforced concrete foundations separate from the machine, and at the same time had a housing made of heavy cast steel sections bolted together. These features have been incorporated in the newer Cedarapids 50-50 units. The original diesel engine drive was replaced with the two 250 hp. electric motors so that if more power is needed it is available.



Method of mounting large impact crusher on steel and concrete foundation

NEW

Machinery



Diesel Driven Arc Welder

HOBART BROTHERS Co., Dept. DW, Hobart Square, Troy, Ohio, has added a diesel engine driven arc welder of 300 amp. capacity to its "Multi-Range" welder line. The welder is powered by a General Motors Model



Arc welder features diesel power, separate excitation, and two-way ventilation

GM-2055, 2-cycle unit injection diesel engine, that features oil cooling, displacement blower, fuel filtration and easy starting. The engine has a piston displacement of 141.8 cu. in., and is rated at 67 hp. at 1500 r.p.m. The welder is equipped with the patented "Multi-Range Dual Control," and remote control to permit the operator to make fine voltage-ampere adjustments on the job, eliminating unnecessary steps from the work to the machine and back again. Other features include separate excitation and two-way ventilation for a smoother, more productive arc.

Materials Handling Lab

RICHARDSON SCALE Co., Van Houten Ave., Clifton, N. J., completed a \$150,000 laboratory in 1952, for the development and improvement of materials handling equipment. It is staffed with research engineers who apply research techniques to the materials handling field. A complete machine shop, electrical laboratory, solids-flow laboratory and test quarters are available. Since its completion it has added over a dozen items to the standard line of materials handling and weighing equipment, designed a variety of special pieces of equipment for special field problems, and built a versatile and accurate instrument control system.

The researchers at the laboratory are presently determining and evaluating the factors governing the flow of solids in bins to aid in the design of chutes, hoppers and bins. Efforts to increase the speed and accuracy of the E50 automatic scale are also being made at this time.

The electrical laboratory, besides fitting standard equipment with up-to-date instrumentation, has developed a synchro-mechanism, which runs on 60 cycle and has accuracies of the order of one part in 4000. With these instruments, the company has been able to develop automatic, remote-controlled weighing and formulating processes that have found application in the chemical process, cement and rock products industries.

Some of the materials handling machines developed in the laboratory include: An automatic scale for weighing coal; a screw-fed gross bagger for hard-to-handle hygroscopic materials; an automatic scale that discharges 100-lb. loads; a hand-operated semi-automatic gross bagger; a cam grip bagholder; a low-power vibrating feeder; a constant-weight continuous feeder; and a two-headed sewing pedestal for sewing open-mouth bags.

A system for automatically proportioning ingredients for dry concrete mixes has been developed. It is a remote-control batching process, and is said to be fast, extremely accurate and permit quality control impossible with hand mixing operations. Outputs may vary from a few hundred pounds to several tons a minute. There is no limitation on the number of ingredients the system can handle, but at the same time, it is possible to change formulas every time a batch is made up, with no loss in production. Although it is essentially a batching process, the system can turn out formulated products in a continuous stream.

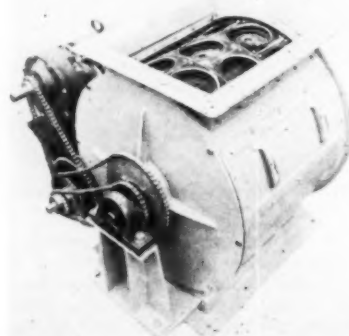
A rotary feeder was developed for handling materials which tend to



Automatic batching system for dry concrete mixes is a remote-control process with outputs varying from a few hundred pounds to several tons a minute

aerate or stick. Non-corrosive chemicals, feeds, grains, cement, and similar materials may be handled by the feeder, which features 36 rubber pockets which trip a volume of material and carry it to a discharge. The pockets are 5-in. in diameter, and tend to suck in the material with a minimum air displacement, and urge the material out a discharge, acting as a positive displacement pump. Outputs range from 300 to 1000 c.f.h., and a uniform flow, silent operation is claimed for the self-cleaning, self-contained unit.

In operation, the unit is attached to the bottom of a bin, the feed drop-



Feeder has 36 5-in. dia. rubber pockets which trap material and carry it to a discharge

ping into the machine, filling the pockets located on the periphery of the feeder drum, and delivering it to the processing equipment. Openings on top and bottom are 15 x 19 in. To assure uniform output, the pockets are spaced on three staggered rows. The drum is hollow, made of mild steel and runs on heavy-duty bronze bearings. To prevent flushing of the product, a clearance of only 0.030 in. is allowed between the drum and outer cylindrical frame. An access plate is provided for inspection of the drum and pockets, and a sprocket drive turns the drum and shaft from outside the framework. A gearhead motor with a maximum 60 r.p.m. speed runs the drive.

V-Belt Drive Units

FLEXIBLE STEEL LACING Co., 4607 Lexington St., Chicago 44, Ill., has brought out "Alligator" V-belt drive units for A, B, C and D drives. Introductory units contain open-end V-belt, fasteners and tools to make V-belts of any length. Replacement units contain belting and fasteners. The units are for emergency use and when correct endless belt is not available.

NEW MACHINERY

Air-Hose Coupling

BINKS MANUFACTURING CO., 3122 Carroll Ave., Chicago 12, Ill., has brought out the Q-D air connection, a compact, quickly-detachable unit,

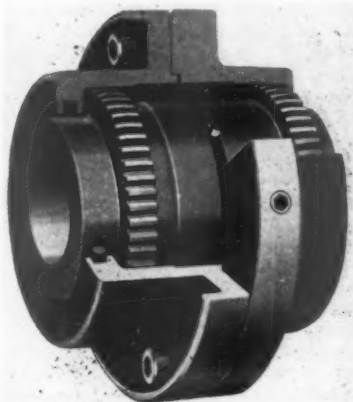


Air-hose connection reduces pressure drop at the connection point

which is said to cut the pressure drop at the connection point to 5 percent. The connection has full 360 deg. swivel action, and is locked into place with one short push. It consists of two main elements, a section which threads onto the air inlet of the air-powered tool, and a sleeve with a sliding collar which attaches to the air hose. An automatic air shut-off is reported to assure no loss of air when making or breaking the connection. The swivel connection is made for standard air hose sizes with standard pipe threads.

Geared Flexible Couplings

LINK-BELT Co., 307 N. Michigan Ave., Chicago 1, Ill., has introduced a line of geared flexible couplings for high speed and high torque applications. Hubs can be furnished, bored for either slip or shrink fit on the shaft. The two-section, free-floating housing has internally cut gear teeth. The two sections are rabbet fitted, and are bolted together to function as a single rigid unit, forming a dust-proof, lubricant-retaining enclosure.



Cross-section shows internally cut gear teeth

The wide face of the internal gear teeth provides for end float of the connecting shafts while maintaining full tooth contact. Ten standard sizes are available, with bores ranging from 1 in. to 6 in., and with horsepower ratings at 100 r.p.m. ranging from 2 to 450.

Percussion Drill

VAPOR HEATING CORP., 4501 West 16th St., Chicago, Ill., recently announced the Bassinger percussion drill, developed by Ross Bassinger of San Antonio, Texas, and specifically designed for granite drilling. The drill, powered by a portable Vapor-Clarkson steam generator, produces a 256,000-lb. impact per blow. The drill is about

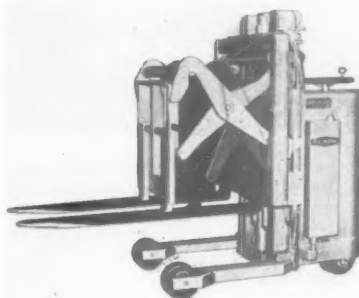


Ross Bassinger holds a drill bit head with tungsten carbide inserts. Note the center hole for the ejection of steam, carrying chips and grindings

5 ft. long and less than 4 in. in diameter, including the two pistons and cylinders. It is designed to beat on solid head bits, which are available in various sizes from 4 1/4 to 12 in., and have four tungsten carbide inserts in the bit head. Exhaust steam from the hammer piston is ejected out of a center hole at the bottom of the drill between the inserts and carries away the chips and grindings. The steam generator burns oil fuel, has modulating controls and develops 75- to 600-lb. of steam per hr.

Electric Tying Truck

THE RAYMOND CORP., 213 Madison St., Greene, N.Y., has brought out the Reach-Fork electric tying truck which right-angle tiers from a 6-ft. aisle. The off-set drive wheel has a turning arc of 200 deg., and the forks extend 24 in. and back in a few seconds' time. The truck stacks pallets close together, as no space is needed between loads to accommodate the



Electric tying truck with reach-fork design

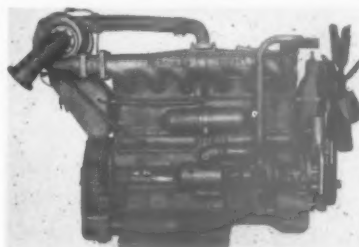
base forks. It has a 51-in. free lift and a 200-lb. capacity. Knee-action swivel casters and large load wheels permit operation without slowdown on uneven floors, door sills and dock boards while insuring four-point suspension at all times.

Emergency Power Generator

KATOLIGHT CORP., Mankato, Minn., has announced a group of 1800 r.p.m. emergency power generators designed for service in case of a power failure. The emergency generators range in sizes of from 2000 watts to 15,000 watts, and may be connected by belt to a tractor or any speed governed engine. A revolving armature or a revolving field design is available. The revolving field type has a separate direct connected exciter, and is said to feature exceptional overload and motor starting ability. A standard pulley and panel complete with a voltmeter and rheostat can also be supplied along with necessary approved transfer switches. The generators are also available in three phase characteristics.

Turbo-Charged Engine

HERCULES MOTORS CORP., Canton 2, Ohio, has introduced Model DFXE-TS, a turbo-supercharged version of its six-cylinder diesel engine, Model DFXE. The supercharged model develops 846-lb. ft. torque at 1800 r.p.m. and 318 hp. at 2000 r.p.m. Engineering features include forced feed lubrication by gear pump to the connecting rods, main bearings, piston pins



Turbo-supercharged diesel engine

and rocker arm bearings; intake air heater for cold starting aid, burning fuel oil or ether; full floating piston pins of alloy steel; and an exhaust-driven supercharger.

ROCK PRODUCTS Industries Will Have Another Year of

IN ATTEMPTING TO REVIEW BUSINESS CONDITIONS in the rock products and concrete products industries for 1953 and to predict the outlook for 1954, we have drawn from many sources, in addition to comments received from producers in reply to our requests for information. Our sources outside the industry, as well as producers, indicate that 1953 was a record year from the standpoint of volume, in practically all branches of the industries we serve, and most certainly in all those which supply construction materials.

The year ahead will be another good one for these industries but the economy of the nation is in a transition stage which makes it difficult to forecast the distribution of materials according to markets. Apparently, we are entering a moderate softening period, of readjustment, in industry as a whole which will reflect in market re-adjustments.

Where housing and industrial building may be a bit lower overall, the construction of highways will likely show a marked increase in volume of spending, and certain classes of commercial building and public building will also increase, to offset losses in the other categories. This in turn will reflect in the emphasis on production and in sales activities of producers. Those who depend to a large extent on home building and industrial construction for their markets will have to accelerate sales efforts and/or seek other outlets. This is borne out in our letters from such

Construction in 1954 predicted to reach second highest level in history. Highways and public works will offset expected declines in other building activities

By BROR NORDBERG

producers but they are not viewing 1954 with pessimism. In fact, a compilation of returns indicates that producers are looking forward to a high volume year and are preparing for it. They are much more optimistic than many of those who have been prophesying in the press that the country is in for a "downturn" or "moderate recession." Many expect that their volume of business in 1954 will equal or even exceed all-time records established in 1953.

General Business Conditions

As far as general business conditions are concerned, businessmen apparently are planning ahead on the assumption that overall sales volume in 1954 will be down somewhat, but individual companies seem to think they can hold the line on their own sales through cost reductions and greater sales efforts. A great majority have confidence in the nation's economy and cannot see any immediate sharp turns in business trends. They expect a moderate down-turn the first half of 1954, to be offset by an upswing the last half of the year.

Attention is concentrated on holding profit levels through a combination of sales effort and cost control.

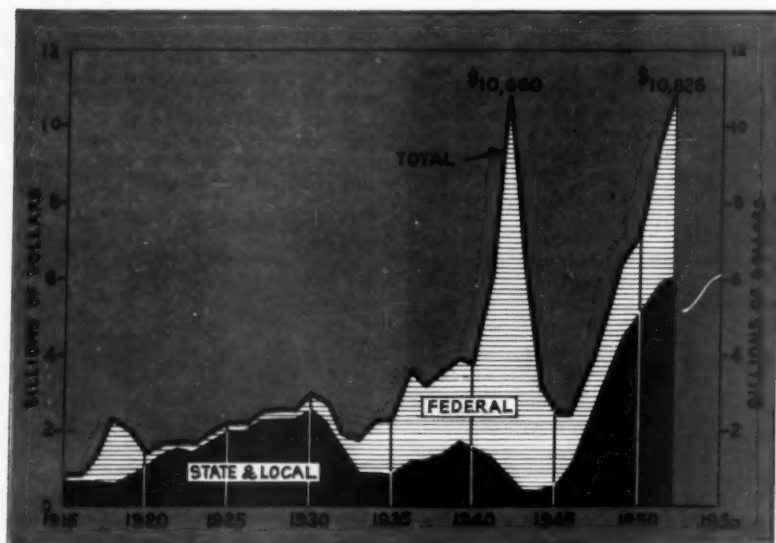
Extra money for advertising and sales expense is being provided for in many budgets, particularly in order to push new products. It also is apparent that industry recognizes that it must keep up-to-date with the latest in equipment in order to accomplish its objective.

One report has it that the steel industry is prepared so that it can earn just as much profit at 85 percent of capacity as it has realized at full capacity.

National Gypsum Co. expects its net income for the first six months of 1954 to reflect in approximately 25 percent higher dividend payments, even in the face of expected shrinkage in sales, due to its ability to reduce costs, expected price increases and savings resulting from the dropping of the excess profits tax. This company will spend \$30 million for capital expansion over a 4-yr. period, which is expected to reflect in greater earnings over the long term.

Chairman Melvin H. Baker of National Gypsum Co. recently summed up the business situation when he said that the key issue facing business is "How to Induce More Buying?" Whereas ability to sell faces a tremendous challenge as the volume of defense buying declines, he said that it would require only 5 percent over the current level of private consumption of goods to offset a reduction of \$15 billion in government purchasing. He strongly believes that building a demand for goods through creative selling will keep the level of business activity high. A survey of National Gypsum Co.'s salesmen showed that only 15 percent had had any experience with selling in a competitive market, and steps are well under way to prepare them for it. This is likely true throughout other industries and points up the field for action.

Chairman Benjamin F. Fairless of U. S. Steel Corp. has expressed the situation by stating that if the product is right and the price right, people are ready and able to buy. With personal income at an all-time high, he said "we only have to make what



Curves showing the trend of public expenditures for new construction from 1915 to 1952. From data prepared by U. S. Department of Labor, Bureau of Labor Statistics

Near Capacity Operation

they want, and to make them want what we make." The foregoing remarks by two business leaders points up what most segments of industry, including producers of rock products and concrete products, must face. Those most successful in 1954 will be those who do the most effective selling job.

While consumers are getting more price conscious and want better service, the fact of the matter is that conditions for a good business climate are excellent. Consumers' incomes and savings are at an all-time high. With more than \$200 billion in the hands of the people, purchases in fact could be expanded a great deal.

Population of the United States has grown at the unprecedented rate of 2.5 million per year over the last ten years and continues to grow, which is the most potent indicator of good business prospects. With this growth, has come the migration to suburban areas, and the building of new communities to fill their needs, requiring the building of sewer and water lines, supermarkets, theaters and other recreational buildings, schools, churches, parking areas, roads, streets, etc. We have an all-time high of 63 million employed persons and the growing rate of business is at an annual rate of \$371 billion a year. Average income of wage earners is one-third higher than for the pre-Korean war period, savings are higher, productivity is enormous, new industries have developed, the banks are loaded with cash available to builders, and all other factors add up to a large potential market to challenge all industry. It has been many years, however, since people have really been asked to buy anything.

Construction

The forecast of the Department of Commerce and the Bureau of Labor Statistics anticipates high levels of construction in 1954. Expenditures for new construction are expected to total \$34 billion which is only 2 percent under the record \$34 1/4 billion expected for 1953. Whereas industrial building and farm and defense construction may be down, the building of utilities, stores, schools, churches, roads, recreational facilities and about one million non-farm buildings is expected to hold the total at high levels. The estimate adds up to the second highest total construction in history for 1954, comparing with \$12 billion in 1946.

Government estimates as published in *U.S. News & World Report* are that the value of construction for

1953 will total \$34.7 billion and that the 1954 figure will be \$34 billion or a very modest reduction. Freer spending for public works and very easy credit are anticipated. Increases would be in the building of power plants, roads and other public works.

F. W. Dodge reported on December 14 that the construction total for highways and streets for the first 11 months of 1953 (37 states east of the Rockies) was 21 percent over the 11 month period for 1952, with every indication that the first several months of 1954, at least, will continue to be record-breaking. According to this report, the total of new construction in 1953 was 5 percent over the corresponding figure through November of 1952. Commercial building was up 58 percent in dollar volume over 1952; educational building, 16 percent; religious building, 20 percent; social and recreational building 52 percent. For the same 11-month period, nonresidential construction was up 7 percent; residential down 3 percent and heavy engineering was up 19 percent. Whereas dollar volume in 1953 exceeded 1952 figures, physical volume was not proportionately high due to price rises. Due to competitive conditions developing, moderate price declines in 1954 should reflect in more physical volume of construction in relation to dollar outlay.

According to the U. S. Department of Commerce (November, 1953) factors contributing to the 1953 volume of construction were the open winter of a year ago and the almost unrestricted availability of materials. Ma-

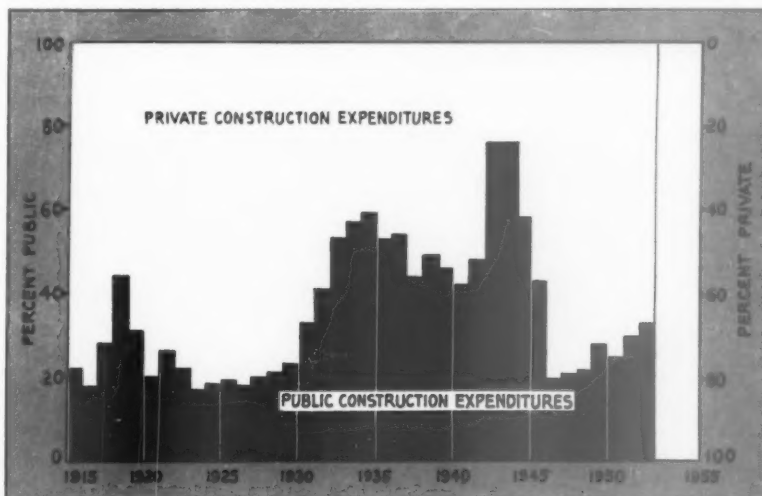
terials prices and wages advanced through July but lumber prices were lower. Commercial construction rebounded after restrictions on that class of activity had been removed and such building, of stores, restaurants, garages, offices, etc., was on the way up steadily through 1953.

According to an *Engineering News-Record* study, a tremendous backlog of engineering construction type projects and mass housing, totalling \$69 billion, guarantees that construction can be maintained for five years at the 1952 high rate of accomplishment. This backlog is being drawn from at a rate that represents less than one-half the total engineering construction each year.

This study brings out that the population increase of some 22 1/2 million over the 1950-1960 period alone will require the building of 450,000 homes annually. To this must be added 275,000 units annually to replace worn-out homes. Then, the clearance of slums and the removal of obsolete and sub-standard homes will add up to a continuing rate of building at record rates. Campaigns are now being started by various organizations and large suppliers of building materials aimed at the enlargement of, and replacement of existing homes.

Roads

Highway and street construction are destined to show a continued upturn in 1954, and in the years ahead, as the result of continuing pressure for better roads. A big push is on for a long-range highway program. The



Expenditures for new construction, public and private, on a percentage relationship. From data prepared by U. S. Department of Labor, Bureau of Labor Statistics

OUTLOOK

American Road Builders Association has been advocating a 10-year expanded federal-aid program in recognition of the fact that we now have 54 million vehicles traveling a half trillion miles annually over 3,300,000 miles of streets and highways. The federal aid authorization is now \$575 million a year for the fiscal years 1954 and 1955.

In 1953, highway construction totaled a new high of \$3,243,000,000 and the figure will be larger in 1954. Maintenance expenditures increased from \$1,614,000,000 in 1952 to \$1,672,000,000 in 1953. Thus the total expenditure which includes new construction, maintenance, administration, interest on bonds, policing, etc., amounted to \$5,450,000,000 which is an enormous figure but still far short of the need.

It is estimated that two-thirds of 664,000 miles of the federal aid highway system is deficient and that only one-fourth of 37,800 miles of the interstate system is up to standard. Further estimates are that it will require expenditure of \$11 billion to bring the interstate system of highways up to standard and \$40 billion to correct deficiencies in the federal-aid system. Total minimum requirement, according to the United States Bureau of Public Roads, is that \$4 billion be spent annually for new construction plus \$1.5 billion annually for maintenance, or a total of \$5.5 billion per year over a period of 15 years in order to bring our roads up-to-date.

Outlays for road construction in 1953 were 10 percent higher than in 1952 but costs were such that more pavement was not necessarily placed. Of the total, about \$500 million was for toll-road superhighways of which 20 percent was for the New York Thruway.

According to a survey, 26 of 36 states spent more money in 1953 for highways than they did in 1952, of which six established all-time records. A few states actually spent less money in 1953.

Financing remains the big problem but progress continues to be made in its solution. Higher gasoline taxes

have been or will be levied in some states and various schemes for the levying of weight taxes for trucks, assessments for ton-miles traveled, bond issues, etc., are being adopted or are under consideration in other states.

Many states are turning to self-liquidating toll roads as a partial answer to the problem of financing. Twenty-five states now have the legislative authority to build toll roads, nine have such roads in operation and four states have toll roads under construction. There are 900 miles of such roads in use, 1000 more miles are being built and 477 additional miles have been authorized.

Most of the toll roads are paying out but actually they constitute only a limited development idea, and toll roads can only represent a very small part of the total requirements of \$50 billion needed to finance needed streets and roads.

Surveys indicate that the highway dollar has only 43 percent of the purchasing power of the pre-World War II dollar, which is the crux of the problem. During the same period, the volume of highway travel has doubled on an annual basis.

Highway transportation directly and indirectly accounts for one-eighth the gross national production, thus contributing \$45 billion to the general welfare of the nation, and it is in this economic value of highways that the people must yet be educated. Continuing pressure is being applied to get the story over. Highway construction is one of the mainstays for continuing good business for the rock products industries.

Estimates are that \$3.3 billion will be spent for new highway construction in 1954, \$3.5 billion in 1955 and that the rate will be \$5 billion in 1960.

Government Programs

All the foregoing points to prosperous times in the years ahead for the rock products and concrete products industries but a further encouraging note is that construction has a top rating in Washington as a

hedge against any recession in general business.

One plan provides for important alterations as recommended by F.H.A. which would lower the required down payment and pay-off terms for F.H.A.—insured mortgages. Lower credit requirements would be of great importance in heading off a recession in home building.

There is also the possibility that the federal mortgage insurance program may be broadened to take in commercial construction such as stores, warehouses and offices, should the economy decline. Other plans considered might ease up on design requirements and provide increases in the amount of insurance for home repair and modernization loans. Longer term mortgages to reduce the amount of monthly payments would stimulate home building by people in the low-income brackets.

Public works are also under consideration in Washington, to be accelerated in the event of economic recession, which has merit provided that really useful projects be built. Incidentally, the \$2.1 billion authorized by the federal government during the current fiscal year for the construction of federal projects is in addition to very sizable carryovers for 1954.

New depreciation plans are also under consideration to spur the building of plants by industry and the buying of equipment. These plans would permit accelerated write-offs for depreciation.

Competitive Materials

The long range outlook is bright but there are competitive conditions and materials entering the construction scene that bear watching by the rock products and concrete products industries and which may be successfully met by intelligent promotion.

The use of steel and aluminum siding in place of masonry for the building of hotels, skyscrapers and other structures is one example that constitutes a real threat. An aluminum producer has stated that 20 percent of his company's production is already for architectural use and that the figure is expected to grow to 50 percent. It is claimed by this company that the use of aluminum in building is cheaper than masonry. Speed of erection and space considerations are stressed as advantages but the durability of such metals as compared to masonry must yet be proved. Recently, one of the large steel manufacturers has set up a plant to build structures of steel. Lumber prices are on the downgrade, which is another factor to be considered.

On the other hand there is strong evidence that wide-awake producers in the rock products and concrete products industries, who are diversifying and entering new fields, are getting a larger share of the construction



Showing estimated private and public construction (in billions of dollars) in 1953 and anticipated volume in 1954

dollar than the average. The use of prestressed concrete in place of steel is one example.

Producers of all classes of rock products and concrete products were very generous in reply to our letters requesting comments related to business conditions, and we take this opportunity to express our thanks for the fine cooperation. Herein, we attempt to summarize these letters, from all branches of the rock products industry and the ready-mixed concrete industry. A separate article covering the concrete products industry, based in part on letter replies, is published in the *Concrete Products* section of *Rock Products*. Business conditions and prospects for the portland cement industry are summarized in a separate article herein.

Our letter requested comment to the following questions:

"1. With the prospect of some softening of the volume of business in 1954 and the advent of keener competition, what steps are you taking to insure as good profits in 1954 as in 1953?"

"2. It has been proved that industry spending is very important to the maintenance of good business. Are you prepared to continue normal expenditures for additional facilities and replacements to maintain and increase efficiency, even though anticipated volume of business may be less?"

"3. How did volume of business and prices hold up in 1953 as compared to 1952? What was the distribution according to use for highways, home building, industrial building, commercial, etc? Do you expect a marked change in volume for each classification for 1954?"

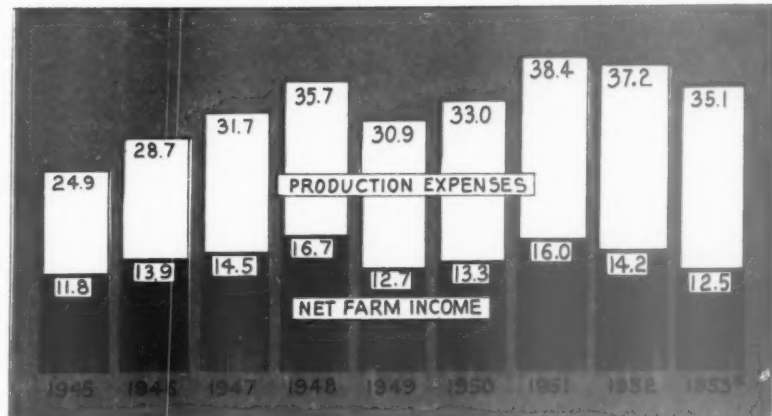
"4. Are you prepared to introduce new products or develop new markets, to offset losses in volume of business that might come in the near future? What are these products and markets?"

"5. Are your production facilities geared so that they may be operated profitably at reduced rates of production?"

"6. What will be the principal handicaps to doing business in 1954?"

Replies to our letter disclosed that the industry is already prepared or in process of getting ready to face competitive conditions. Many have already faced up to competition that did not exist a year ago.

The majority have stated that they are stressing cost reduction, better service to their customers and strict attention to quality of product. Sales forces are being bolstered and there will be great emphasis on advertising and sales promotion. An interesting observation is that very few producers have expressed real concern about the prospects for business and many look upon growing competitive conditions as a challenge. There was very little griping about government and com-



Farm income trends (billions of dollars); 1953 figures are preliminary, based on data available on October 1. From U. S. Department of Commerce, Office of Business Economics

paratively few indications that real or imaginary handicaps to doing business exist.

Sand and Gravel

In answer to our first question, as to steps being taken to hold the profit line, the majority of sand and gravel producers told of plans to reduce costs and widen markets. Several are converting from dry to washing plants so that they may better satisfy specifications. Others have built or are building low labor requirement plants of greater capacity on the theory that the only answer to cost reduction and profits is volume production. Cost accounting is being stressed by a number in order to attack the problem of wasted expenses. Some who have their own delivery equipment are shifting to larger capacity trucks. Sales forces are being increased and men trained to meet competition. A Texas producer pointed out that his practice of adding new equipment and plant building over the past eight years was pointed to the competitive situation which has now come about.

Others are prepared to go farther for business and a few companies are erecting sand and gravel plants at distant locations in order to widen their market areas and hold volume. As far as plant building in existing plants is concerned, stress is to be on efficiency of equipment rather than increased capacity, although quite a number of sand and gravel producers intend to step up productive capacity. In Texas in particular, producers have established great numbers of small capacity plants at scattered locations, and that trend evidently is still active. Apparently, a great amount of equipment will continue to be installed in existing plants, to permit meeting a wider number of specifications, to cut rejections, to eliminate bottlenecks and to replace older and less efficient equipment.

Several companies say that operating men will be pressed into service during any spare time, to handle

maintenance, rather than at overtime rates or the employment of additional help for the purpose. One company mentioned that zoning ordinances resulted in property values being so high in price that it was impossible to expand. Quite a few sand and gravel producers anticipate entering the concrete products field, as a means to diversify or to utilize excess sizes for profit. Others are to start the production of engine sand and filter sand for the first time. One large producer in the west is doubling his operations and will add plaster sand, brick sand and engine and filter sands. He will also produce roofing gravel, asphaltic materials, new road surfacing materials and crush $\frac{3}{8}$ - $\frac{1}{4}$ -in. into sand.

As far as expenditures for additional facilities and replacements are concerned, the sand and gravel industry with very few exceptions intends to continue normal practice and many producers anticipate more than average spending for the purpose.

As far as business is concerned, more than 50 percent of the replies to our letter were that volume of business was better in 1953 than in 1952. Some 16 percent reported equal volume and the balance reduced tonnage. There were instances of price reductions but the number was offset by those who reported an improved price structure. Changes in volume in 1953 were not of sizable proportions either up or down. One company reported a 25 percent reduction and the highest increase in volume reported was 27 percent. A moderate drop in housing and industrial building is expected in 1954 but not in all areas. Commercial building is expected to be good generally and highway building is expected to increase in most areas. There were just as many producers who expect increased volume of business in 1954 as those who anticipate declines. Others expect to hold the line which, in most instances, represents capacity production. There are a few scattered sections where price-cutting has set in.

OUTLOOK

There are few opportunities for adding new sand and gravel products so it is surprising how many sand and gravel producers intend to do so. It has already been touched upon in this article that a good number of sand and gravel producers will manufacture concrete products; some will wash their materials for the first time, a few are starting to produce ready-mixed concrete, some will crush gravel for asphaltic pavements for the first time and some producers of engine sands anticipate putting out a dried product.

Nearly all producers anticipate that they could operate profitably at reasonably reduced rates of production. Some who have been working well over the 40-hr. work week, paying overtime, feel they will not suffer through reducing overtime operations but expect that unit costs will be higher if production be cut under 40 hr. due to labor contracts in effect. This is the case particularly in the New York City area. Some plants are set up so that one man can do the work of two or three in the event production may be reduced markedly.

As far as handicaps to doing business are concerned, lack of competent labor, price-cutting and reduction in farm income as it applies to producers serving rural areas, were most frequently mentioned. A few producers said they had no particular problems, now that the labor situation has cleared up, other than uncertainty as to the trends in business. Difficulty in obtaining long-term financing for capital improvements and zoning restrictions were mentioned by a few producers. Several complained that contractors were bidding too low on certain jobs and were seeking to make it up at the expense of producers.

Typical of comments from sand and gravel producers are the following:

A Michigan producer of sand and gravel and ready-mixed concrete—

1. "Will increase our sales force so as to do a better job of selling.

2. "Yes, we intend to continue normal expenditures. We are, in fact, building a complete new modern plant in order to better service for our customers.

3. "Volume of business in 1953 was up 7 percent above that for 1952.

The distribution was:

Highways	22 percent
Housing	24 percent
Industrial	28 percent
Miscellaneous	26 percent
	100 percent

"We do not see a marked change at this time except that industrial construction might drop down a little.

4. "Yes, we will introduce new products which we are not ready to dis-

close.

5. "Yes

6. "We do not see any special changes or any developments which

would handicap our business for 1954."

A producer of sand and gravel and ready-mixed concrete in the New York City area—

"1. In the New York City area, we anticipate a volume next year that will be equal to or better than that of 1953. To some extent, this is caused by the nine-weeks' strike we experienced during July and August but, over and beyond that, we feel that we can expect a good year.

"We are extremely cost conscious and, with our unlimited weight loss, are purchasing larger delivery equipment as we are replacing old equipment or enlarging our fleet.

"2. We direct our normal capital expenditures by a study of whether new equipment will pay for itself in a reasonable period of time.

"Our feeling is that, in times of lower volume, it is just as important to be efficient and cost conscious as it is during 'lusher' times.

"3. Our volume of business during 1953 will probably be equal to that of 1952, even in spite of the strike. Prices are higher, caused primarily by the increased costs of doing business with the new labor contracts, higher material costs, higher cement costs, new transportation taxes, etc.

"We are not in a position to give percentages of volume by highways, home building, industrial building, commercial, etc. I would, however, state that, even though speculative housing has slowed down somewhat, that loss is easily made up in more public work development such as schools, hospitals, highways, etc.

"4. We are continually investigating the possibility of introducing new products and developing new markets but, for ourselves, do not see an entry into new fields during 1954.

"5. Over the past several years, we have been operating on more than the straight time, 40-hr. week, so any reduced rates of production would be taken off our premium pay status. Of course, if business were such that we would not be able to operate 40 hr. per week, our costs would necessarily be substantially higher on a unit basis since most of our contracts require a 40-hr. week and service is such that we cannot effectively operate two, three or four days per week.

"6. The principal handicap in doing business in 1954 appears to us to be a shortage of cement again. The New York State Thruway is using a great volume of cement from the materials which would normally service us. Our company has not yet gone to out-of-area cement and we hope that, if such a necessity should arise next year, under the new laws, the cement companies would absorb the additional freight costs."

A Texas producer:

"1. We have been tightening our belt by installing new and improved equipment and devices for the past

eight years, preparing for the "storm" which as yet has not reached us. I think we are pretty well fortified to maintain good profits.

"2. We expect to continue normal expenditures, perhaps additional expenditures for replacements to maintain increased efficiency of production.

"3. We did very well, indeed, in 1953, as to volume and price. We do not anticipate much change in volume as to classification for 1954.

"4. No.

"5. Yes, we sincerely hope we can operate profitably at reduced volume and we think we are prepared.

"6. There is some softening of the price structure. There is a swing downward in all lines which is very gentle, but competition is becoming more keen and sales more difficult to make. Contractors are bidding ruinously low prices and have cut their costs or their anticipated costs to the bone and they, therefore, have out their biggest, sharpest and best chisels. They are using them as never before.

"We anticipate for 1954 a volume of business slightly less than for 1953 as to volume, and at prices probably somewhat lower than 1953. We are prepared, we think, to weather the storm, if there is one, in good shape."

A Texas producer:

"The territory served by our company is the southwest corner of Texas. While Houston gets the great majority of our material, we operate 12 producing units and also ship to Orange, Port Arthur, Beaumont, Freeport, and to points in between. I will try to answer your questions in the order that they are listed.

"1. We will be greatly disappointed if the volume is very far off in our territory in 1954 but we are reinforcing our sales department in an effort to hold the volume we have and try to increase it.

"2. Most of our plants are small and require moving quite often. With each move, new expenditures are required for replacements and maintenance. There is no doubt but that our expenditures for maintenance in 1954 will equal 1953 and will possibly be greater.

"3. Price in 1953 was possibly 2 percent greater than in 1952. Volume in 1953 was slightly under 1952. I believe our distribution in 1953 went about 50 percent for industrial and commercial, 30 percent for highways and 20 percent for home building materials.

"4. Our products consist only of sand and gravel. It is possible that we will in 1954 have a crushed material for use in asphaltic pavement.

"5. It will be extremely hard for us to operate profitably at any considerably reduced rate of production.

"6. The principal handicap to doing business in 1954 is fear of a recession. We look for no recession in our business and feel that our territory will

demand as much or more tonnage than it did in 1953."

A Wisconsin producer:

"Prospects for 1954, we believe will be 5 to 10 percent less volume than in 1953. More advertising is being planned. Also, more personal contact with buyers. We are trying to effect more economy in men and also production.

"As for expenditures for machinery, we are going ahead with purchases and replacements. Also, we will install plant machinery, conveyors, etc. that will cut down labor and truck operations.

"Prices held up during 1953, but volume of business dropped off. Highway construction was up in 1953, and it looks like it will be higher in 1954. Industrial building dropped very little in 1953, but it looks like a bigger drop is coming. Home building was down quite a bit in 1953, but the outlook for 1954 in this area for home construction, we believe, will be increased considerably.

"We have no plans for new products, or new markets. We just plan to work a little harder on the same markets and products.

"Production can be reduced somewhat but cost of operation per ton or per cu. yd. will increase a small amount.

"The principal handicap to doing business in 1954 from our standpoint would be a drop in farm income. Also, difficulty in obtaining loans for home builders, especially veterans."

A Minnesota producer:

"1. In our particular situation, we anticipate the volume of 1954 to be as good or better than in 1953. If not, we shall continue to stress more efficient operation.

"2. We shall continue capital expenditures as usual to maintain and/or increase operating efficiency.

"3. Volume and prices for 1953 were better than for 1952. Highways and home building were down somewhat, but we expect an increase in highway and heavy construction for the year 1954.

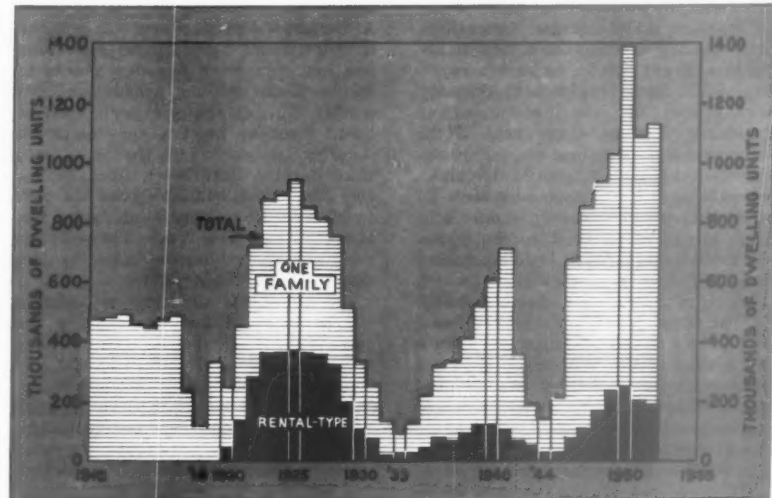
"4. We will introduce no new products in the aggregate end of the business.

"5. Production facilities are such that they may be reduced while still operating profitably.

"6. In our particular local situation, we feel that the year 1954 should wind up with greater volume than the year 1953. Quite a little new highway construction is forthcoming which should add materially to the 1954 volume. We also anticipate that considerable heavy construction such as schools, churches, warehouses, etc. will get underway during the year 1954 which should take up any slack that might develop otherwise."

A Colorado producer of sand and gravel and ready-mixed concrete:

"The prospect for business in 1954 will be considerably less in our dis-



Number of permanent non-farm dwelling units started in the 1910-1952 period. From data prepared by the U. S. Department of Labor, Bureau of Labor Statistics

trict than it was during this year. Although we had an excellent year the majority of our business was carryover from 1952 on defense projects and large commercial buildings which we do not think will happen in 1954.

"We have started a program of new expenditures at our plant this winter which will include a new sand drying plant and minor changes including rearrangement of our present facilities. We also are planning on doing considerable remodeling and repair jobs during this year but do not anticipate it will be as large as it was last year.

"As mentioned above, our business in 1953 was considerably better than in 1952 but this business all occurred in the first eight months of this year and has dropped down lower than it has been for a good many years since then. We estimate our business in 1953 will amount to approximately 27 percent higher than in 1952. In 1954 we anticipate our sand and gravel business will not diminish nearly as much as the ready-mixed concrete business.

"We expect to complete a sand drying plant about March of 1954 at which time we have hopes for increasing our dried engine sand business considerably. We find that many of the railroads are requesting dried engine sand where formerly they used the normal damp sand.

"We feel that our costs will continue to rise next year due to the decreased volume of business and the increased overhead which will naturally follow even though it is necessary to lay off some of our personnel.

"Not only will our costs be higher in 1954 but due to the cut-throat competition now existing the margin of profit is likely to be very low. This letter in response to your inquiry seems considerably on the pessimistic

side but we still feel that a small volume of profit can be made through efficient operation."

A producer of sand and gravel, ready-mixed concrete and crushed slag in the East:

"We anticipate that 1954 slag and stone business will be as good as 1953, however, there has been a slump in our sand and gravel sales, which will continue next year. This is due to lack of highway construction through the southwestern portion of New York State.

"In 1953, prices on slag, stone and gravel remained firm and we anticipate that this will continue. The labor market is still tight but likely to ease off in this area next year.

"We are continually modernizing our equipment to cut production costs and believe we can maintain normal profits next year."

A producer of sand and gravel in Iowa:

"We will stress service. We have built our business on prompt and courteous service even if we lose some of our profit now and then.

"Yes we will continue normal expenditure for additional facilities and replacements when conditions justify.

"The third quarter of 1953 was our best and prices held up along with volume.

"We plan to produce concrete block.

"In our business, weather conditions are our greatest handicap. We depend on the farmers, principally, and if Secretary of Agriculture Benson makes his objective to discontinue price supports to the farmers, it will effect business in general."

A midwestern producer:

"We have started washing gravel this season and it looks very promising for next year. I am going to make some changes to increase production for next year. I hope to manufacture concrete products in the near future."

OUTLOOK

A Colorado producer:

"We are doubling our operations with the construction of a new floating-type gravel plant, to have a capacity of 300 t.p.h. Our present capacity only allows for the production of standard concrete aggregates. With the new plant in operation, our capacity will exceed the demand as far as concrete aggregates are concerned. To offset this we will produce plaster and brick sand, engine sand, roofing gravel, asphalt materials, road-surfacing gravel, filter gravel, etc., for which there is a reasonably good demand.

"The new plant will be equipped with crushing equipment to reduce $\frac{3}{4}$ -in. material to sand. A large percentage of this size of material would otherwise be wasted. The crushing cost will be considerably less than the average plant operation cost."

A southwestern producer:

"The volume of our business is already down some 15 percent. Our previous expansion was in the addition of smaller plants, so we take care of this situation by discontinuing operation at one or more plants as our sales demand.

"Since we had planned no major expenditures for 1954, there is to be none, however, we have abandoned the use of our railroad as a hauling unit from the producing pit to the washing plant, and have substituted therefor Euclid hauling equipment.

"As a whole, I think 1953 will end up better than 1952. Home building was down, but highway use was up. Industrial building was up and commercial building just about held its own. We expect this same trend to continue next year. Prices have been satisfactory throughout the year, although there is a little nervousness at the moment. New products and new markets are being studied continuously, but so far we are not initiating anything new.

"We feel that the principal handicaps to doing business in 1954 will be a little unrest in the matter of price as the volume decreases. We hope that our competitors will not become panicky, as cutting the price does not increase the demand for our commodities."

Crushed Stone-Lime

Crushed stone producers also stressed the need for more attention to cost control in a competitive market and more aggressive promotion of sales. A summary of our letter replies differed from those received from the sand and gravel industry in that a much larger percentage—far more than half—predicted that 1954 would be a better year than 1953.

A large eastern producer of lime and limestone products said that recent modernization of the mine and plant was effective in reducing unit cost by 10 percent. This company is following the practice of consolidating supervisory personnel as retirements

occur, and reducing overtime work. A Pennsylvania producer of crushed limestone and agricultural limestone has just completed two new plants to insure high volume production and profits. This company expects 1954 to be at least as good a year as 1953. Another producer in the east said that, barring unforeseen emergencies, the year 1954 will likely be its best in history. Those within shipping distance of the New York Thruway do not expect anything but capacity production throughout 1954.

An Oklahoma producer is tackling the problem of business lost in the past because of adverse freight rates, by adding facilities for jobsite delivery. The Kentucky Highway Department will evidently have a good program, judging from the optimistic comments from producers in that state. A Virginia producer reports a big backlog of carryover construction that will guarantee volume and profits as good as in 1953.

A large company in South Carolina which has diversified into the production of concrete products including block, brick, joists and ornamental concrete, is looking forward to an excellent year in 1954. This company sold more than its production in 1953, drawing from large accumulated stockpiles to fill orders. It purchased an additional quarry operation in 1953.

A Kentucky producer started underground mining in 1953 so that production can be continued throughout the entire year, and is in process of purchasing much new equipment. New equipment to increase the output of the primary crusher and the addition of new steel bins to speed up truck loading and to effect better blending were installed by a large crushed granite producer in Georgia. An Illinois producer of crushed stone has gone into the ready-mixed concrete business. Quite a few are increasing, or planning to increase, production to reduce labor cost per ton of crushed stone, and it is surprising how many report that they are planning to continue expansion.

In Pennsylvania, one producer has stopped production in one of its smaller, less efficient plants, yet expects 1954 volume to equal that of 1953. A large operator in Minnesota is going ahead with plans to spend one million dollars for expansion and modernization to place it in favorable position to meet sharp competition. More salesmen and advertising are contemplated by quite a few, as they strive to hold volume at high levels.

A retirement plan for younger employees and increases in the technical and sales staff are among the plans of an eastern lime producer. This company has also added a graduate agronomist for field contacts in the promotion of agricultural limestone.

The big majority of crushed stone producers expect to at least continue

normal expenditures for expansion and replacement of equipment, should their volume of business be less.

Maintenance is to be emphasized so that breakdowns in production will be less, this being a solution to producing greater tonnage in 1954 even though production was at a "peak" in 1953. An Iowa producer is installing additional bins in anticipation of producing a greater number of crushed stone sizes. Another producer in Iowa expects to continue expenditures to keep up with specification changes, recently having installed a hammermill, washing plant and other equipment for the purpose. In Minnesota, a large producer is building new yarding facilities for improved service and is adding new ready-mixed concrete batching plants. A large, new primary crusher is going into a crushed stone plant in North Dakota. Other plants are planning installations working toward maximum production in a 40-hr. week. The general thinking is that new equipment for efficiency and enlarged production per unit of labor are the only answers to maintenance of reasonable profits—that reductions in costs are justified anytime regardless of the volume of business.

Forty-five percent of crushed stone producers who replied to our letter said that volume of business was greater in 1953 than in 1952, 25 percent reported equal volume and the balance had less volume but not to any great extent. A Kansas producer whose volume in crushed stone held up well reported a 40 percent decline in agricultural limestone and his farm construction markets. Otherwise the declines were in the 5 to 10 percent range with the falling off occurring largely in the last half of 1953.

It is very obvious from the reports that accelerated highway construction in 1953 reflected in the production of crushed stone and that a higher share of total distribution will be for that purpose in 1954. Home and industrial construction have already levelled off moderately in some areas. Typical of some spottiness is the case of a Pennsylvania producer who suffered declines in volume of sales from two plants. Increases in his other two plants were such that total volume in 1953 was greater than in 1952. Strikes in the New York City area resulted in declines for the year 1953, but much of this business will carry over into 1954, adding up to a favorable outlook. Price declines are expected in some areas.

Opportunities for new products for crushed stone producers are of course somewhat limited but there is strong evidence that the industry is seeking profitable returns from excess sizes and its normal waste material. Several companies are exploring the ag-stone field, others are considering ready-mixed concrete and at least one crushed limestone producer add-

ed ground rock phosphate to serve the farmer better in 1953.

A Wisconsin producer who at one time manufactured concrete block as a sideline activity discontinued the practice and said that it proved more profitable to sell aggregate to established concrete block producers. The high level of railroad freight rates and expensive trucking rates are a strong limiting factor in the extent to which marketing areas might be extended.

Most producers anticipate that their plants may be operated profitably at reduced production rates but the break-even rate is now higher than it had been in more "normal" times. Some say they can continue to earn profits only at production levels slightly under capacity. A large producer of lime and crushed stone in Pennsylvania said that volume of business can drop from 15 to 20 percent in his plant before serious effect on profits. Another eastern producer said that profit levels could be maintained easily while dropping production from the current 55-hr. week rate down to a 40-hr. week.

Other companies which are modernized for high tonnage with low labor requirement anticipate they can hold profits well, should volume drop to sizable proportions. A Kansas producer is meeting this possibility by establishing agstone plants at strategic locations to reduce freight charges. He uses stockpiles and light, portable-type equipment.

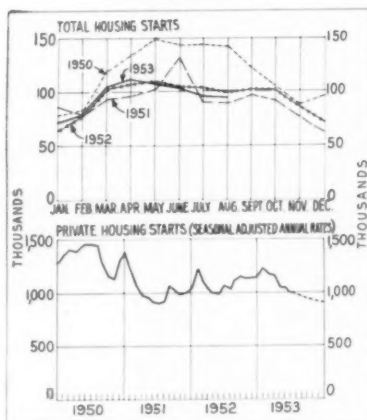
Agricultural limestone producers and crushed stone producers in rural areas are most concerned about the loss in farm income, which according to recent reports dropped \$2 billion or about 10 percent in 1953.

Availability of competent labor, the irresponsibility of labor leaders and the increasing demands of labor for extra benefits and higher wages were the next most frequently mentioned handicaps. Labor seems to be scarce in a few locations, particularly in the metropolitan New York area. Taxes of course came in for mention as a handicap to doing business, as did price cutting. An Iowa producer discontinued operations at one plant because prices did not warrant operations. Several producers complained of growing competition, price-wise, from roadside gravel pits. A Wisconsin producer had a 19.6 percent increase in electric power rates in 1952.

The following are typical of comments from crushed stone and lime producers.

A Pennsylvania producer of crushed stone and agricultural limestone:

"In our particular trade area we feel that our business will be as good or better than it was in 1953. In the past year we have built two new and modern plants and therefore we do not see what else we could do to insure greater profit.



Curves showing number of housing starts over the past three years. From data prepared by the U. S. Department of Labor, Bureau of Labor Statistics

"Our business in 1953 was lower at two of our plants and was higher at the other two so that our over-all tonnage for 1953 was somewhat higher than in 1952. We do not keep records as to the distribution of our tonnage but would estimate that 90 percent of it was used for highway and airport construction with about 5 percent for home and industrial building and the other 5 percent being used for agricultural purposes and mine dusting. No unusual changes are expected in this percentage of volume in 1954.

"We have no plans to develop any new products at this time in our trade area.

"We feel that our plants are efficient enough and since we have been working approximately 55 hr. per week we can very easily operate on a 40 hr. week at a profit.

"In our area the shortage of labor has eased and from all indications supply items should be readily available so that we do not anticipate any particular handicaps in 1954."

A producer of crushed stone and sand and gravel in New York State:

"Although there may be a general softening of the volume of business in 1954, we, here in this territory will not feel it. As you know the New York State Thruway is going through our backyard and we have been extremely busy this year and expect to be so next year. This matter, of course, colors our situation to some extent. At the moment we are not preparing to develop new products nor do we anticipate cutting back any of our plants for the year 1954. Our present concern will be in getting out enough material to supply the contractors on the Thruway and not hold anybody up during the coming season."

A producer in Utah:

"1. We have had very favorable climatic conditions in this area up to today. The first heavy snow-storm is

here today and what the prospect of winter and early spring business will be is impossible to state, because the major portion of the roadwork and building has been completed for this year.

"2. During the year 1953, in order to cut crushing costs, we installed a new 4-ft. Symons cone crusher and a 5 x 14 two-deck screen. This change will increase our capacity by 150 to 200 t.p.h. and we have recently placed an order for a Wemco 48-in. triple spiral sand washer, which will be installed before the 1954 operating season.

"3. Volume was down, with plenty of chiseling on prices. Industrial and commercial building were very satisfactory; home building, due to present political activity, was heavily curtailed and there is no prospect in this area for any increase unless mortgage money is made more available. Highway volume is unknown until new work is bid.

"4. Our plant is a new plant, of very radical design as compared to the normal crushing plant and the present set-up is good for production of 200 to 300 t.p.h., with the employment of four men and our storage is good for 150,000 tons, all going to the storage piles from the screens, without re-handling. Reclaiming is through tunnel and conveyor belts.

"Our principal handicap is politicians, chiefly in the national government. Last year, they were going to balance the budget and give us a hard dollar. This year they have decided they can't balance the budget and must borrow additional money and have higher taxes. Under the circumstances no one can determine what to do."

A Wisconsin producer:

"1. We do not expect much change in the crushed stone business for 1954. The local volume stays about normal unless some highway happens to be built immediately adjacent to the plant, which was the case last year. We always have the keen competition of poorly graded pit-run gravel which is bought entirely on a price basis, and usually from an outfit that works without a union or without any definite wage plan.

"2. We are prepared to continue normal expenditures for any equipment to increase our efficiency and are constantly working toward a maximum production within the 40-hr. week.

"3. Our prices for 1953 were the same as in 1952. However, our volume in 1952 was greater due to the fact that a 9-mile stretch of highway was built within a couple of miles of our plant. We expect our 1954 volume to be normal.

"4. We are confining our efforts entirely to the production of crushed stone and agricultural limestone. Fifteen years ago we were interested in concrete block manufacture, blocktop

OUTLOOK

mix, etc., but today we find it more profitable to sell our material to companies that devote their entire time to that business.

"5. Our production facilities are geared so that we can operate profitably at reduced production, mainly for the reason that we will cut down to meet it.

"6. The principal handicap to doing business in 1954 will be the ever-existing problem of higher wages along with increased taxes and higher costs of everything we use. I have in mind a steady increase for labor each year for the past ten years and last year's increase, in November, 1952, of 19.6 percent on electric power and 50 percent on workmen's compensation."

A large New York State producer:

"1. You assume first of all a certain softening in the volume of business in 1954. Barring strikes or some national emergency, we are hoping for one of the best seasons in our history.

"2. As a result of our business outlook, we are putting into operation, about the beginning of the year, enlarged and improved facilities at one of our biggest plants.

"3. Volume of business in 1953 fell below that of 1952 due to a prolonged strike of our own and a prolonged strike immediately thereafter in the construction trades in New York City.

"I would say that the principal handicap to doing business in 1954 would be the continued irresponsibility of labor leaders and their unwillingness to live up to the spirit or even the letter of contractual agreements."

A Tennessee producer:

"1. In reality, our business has been off approximately 25 percent during 1953, and we anticipate, if anything, an increase in volume for 1954. This was caused by the fact that the Tennessee Highway Department, as well as business in general in the crushed stone line in Tennessee, apparently has been slow.

"2. We anticipate normal expenditures for any additional facilities we find necessary for economical operation.

"3. We have partially answered this question in our analysis of the No. 1 question. As to the distribution according to highway materials, etc., our principal decline has been in highway materials, although home building, industrial building and commercial stone, as well as agricultural limestone for farmers, have been off proportionately. We expect an upward trend in highway material in 1954, but possibly not in the others.

"4. Unfortunately, our market is limited, since there are many crushed stone plants in this area. We do not anticipate any new products.

"5. Our production facilities are so geared that we need a large volume to operate profitably, and during slack months we usually stockpile sizes that

we know will be used if and when the demand is good.

"6. We expect a continuing of the leveling-off period we are now in, during the early part of 1954, and although we anticipate additional highway construction, as stated above, the Highway Department in Tennessee is allowing gravel and chert to be competitive on almost all jobs, thus making it very difficult for the stone producer."

A large producer in Kentucky:

"1. According to indications in Kentucky, our forward-looking highway department sees the need for improving highways and it would appear that our business should consequently be good during 1954.

"2. Our plants and operations are in good condition. However, our policy is to maintain them in a satisfactory manner in anticipation of future business.

"3. Volume of business in 1953 was slightly less than in 1952 due to weather conditions mainly. It has been normally distributed and we expect no appreciable readjustment in 1954.

"4. There is no indication that volume of business or markets will be outside the average in the near future. We have no immediate plans for new products or new markets.

"5. Under ordinary limitations we are geared to operate profitably at somewhat lower rates of production.

"6. Heavy rains in the early spring and drought conditions later in the summer had some effect on the volume. However, business proceeded fairly normally for us in 1953."

A Virginia producer:

"Generally, the backlog of orders which we now possess will carry us well into 1954, running at about the same peak of operation as existed in 1953. Because of this fact, the com-

pany will continue to make replacements of equipment at about the same level as in 1953.

"It is felt here that profit-wise the year 1954 would not be too far off from that shown in 1953. Also it is felt that the business of this company will not begin to drop in volume much before 1955."

A producer of crushed stone, sand and gravel and ready-mixed concrete in Minnesota:

"We do not see any softening, however we are spending in excess of a million dollars to improve our competitive position in case there is such a softening.

"Volume of business in 1953 was 15 percent ahead of 1952. Prices held up in good shape. We expect more municipal and state road and street work after 1953.

"We are changing our competitive position by building new yards and concrete plants to begin operation in April, 1954.

"There is no substitute for volume. We believe, however, that with our new facilities we will be better able to "pull in our horns" if necessary.

"Federal taxes and the depreciation schedules connected thereto are the principal handicaps."

A Kansas producer of crushed limestone and agricultural limestone:

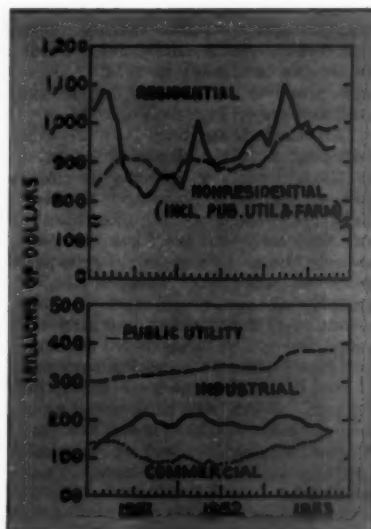
"1. We are intensifying our sales campaign by the hiring of additional salesmen and more attention to spot advertising.

"2. We feel that any expenditures which will increase our facilities and efficiency are justified even though the volume may be reduced.

"3. Our volume of business in 1953 was about equal to that of 1952 in the crushed stone business, but the agricultural limestone and farm division was reduced about 40 percent. We operate on a fiscal year ending June 30, and our 1953-54 business is continuing on the same vane with the exception of a slight increase in the crushed stone end and more decrease in the agricultural end. Our largest sales were for highways, our industrial building business was increased, but our home building was decreased about 60 percent. We expect the highway phase to continue or even increase slightly, the home building to practically cease and industrial and commercial to maintain its present status with the possibility of a 10 percent cut.

"4. We introduced a new product last year in the form of rock phosphate, but due to the heavy drought and policies of the federal administration as to agriculture, this only added to our losses. We have hopes that this trend will be reversed, particularly in view of the heavy rains recently and the better condition of agriculture in this section.

"5. We are establishing production facilities in strategic points throughout our area, particularly as to agri-



Trends in construction activity for the past three years. Prepared by Department of Commerce, Office of Business Economics

cultural limestone. Serving an area of approximately 25,000 square miles in 21 counties, freight and its increase in the past year is a very vital problem in our production costs. By using comparatively light, portable equipment and building up stockpiles of only sufficient amounts to take care of the immediate demand, we hope to overcome some of the fixed charges which we are now being obliged to absorb. We are also contemplating moving our main headquarters and shops to a more central location so that repairs and maintenance can be carried on in our trucking operations without so much delay and dead hauling.

"6. We feel that the principal handicap to doing business in 1954 is the policy of the administration for the curtailing of agricultural aid and the apparent lack of understanding as to soil conservation requirements by the administration, together with its policy of reducing appropriations for highways and housing. We feel that the result of congressional elections in the recent past might have a tendency to cause these policies to be mollified. There is some evidence of this in the fact that the Agricultural Department is permitting the farmers to sign up on PMA projects every three months which gives them an opportunity to switch their practices as conditions dictate.

"The thing that causes us the most concern is that conditions such as occurred prior to the last great depression are now prevalent in the middle west. Everything the farmer buys is going up; everything the farmer sells is going down. Unless these trends are adjusted another crash seems inevitable. We are trying to keep our bills paid and our hours of work to a minimum in order to be ready for the crash in case it arrives.

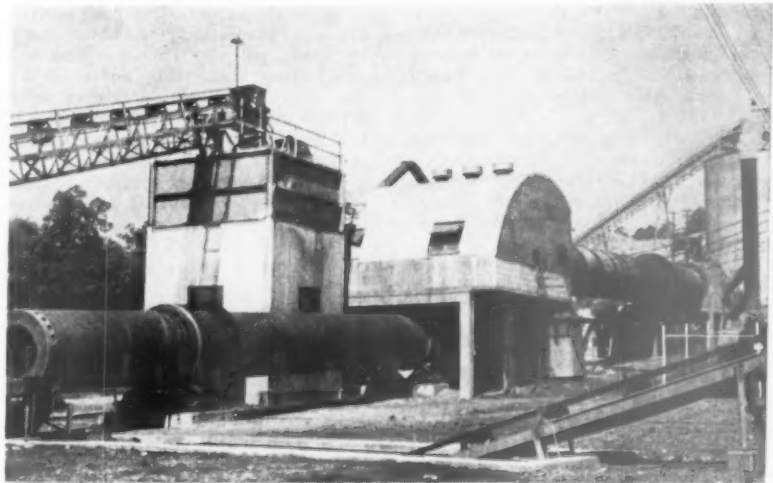
"If the trend in the country at large is comparable to that in the mid-west, we feel that there will be a change of party control in 1954 and a change in national control in 1956. While the president's popularity is still sufficient to re-elect him in our state, the policies suggested to him by his advisors are not acceptable to the people here and they will vote the legislators out and the policies in which they desire."

An Iowa producer of crushed stone and agricultural limestone:

"1. The only logical solution I can see is to increase production and cut costs, but I see no such possibility in the face of increased supply prices and higher wages.

"2. We are constantly spending for additional facilities and replacements hoping thereby to meet the ever-changing specifications.

"3. While our production was somewhat higher in 1953 our prices were correspondingly lower. Local street work and county road work used the bulk of our production this year, and



Kentucky Light Aggregates, Inc. plant, for manufacture of expanded shale lightweight aggregates, is owned by sand and gravel company

we do expect a marked reduction for 1954.

"4. We are prepared to add new products but see no immediate future for such production.

"5. Only increased tonnages can increase profits."

This company added an additional hammermill, stone washing plant, power shovel, large drill and compressor in 1953.

An Iowa producer:

"1. Volume of business in 1954 should be greater than in 1953. Road building should increase over 1953, as the Highway Commission will have more funds to spend. This increase will come from an increase of one cent per gallon tax on gasoline in 1953. This increase was collected the last six months of the year.

"2. Yes.

"3. The volume of business was down in 1953 compared to 1952 with little changes in prices except in some spots where there were too many trying to operate plants which resulted in a softening up of prices. Sales of agricultural limestone were off over the entire state. Too much politics entered into the farm program, and as a result farmers are waiting to find out what the final program is going to be.

"4. No new products will be added unless there is a demand for them or a change in present specifications.

"5. Yes, we operate a stationary plant and a portable plant in the same quarry. If there is not enough business for both plants, we can close one down or move the portable out to some location where there is work."

A crushed granite producer in Georgia:

"1. We are installing new equipment to increase the output of our primary crusher.

"2. We plan to continue replacements and add new equipment to improve overall efficiency. We are also

developing a new level in the quarry.

"3. Business remained about the same with distribution also about the same as in 1952.

"4. No new products are contemplated. Markets are limited by freight rates and truck hauling rates.

"5. Yes, we can operate profitably at reduced rates but under Union agreements there is no flexibility in adjusting wages without renewed bargaining, and some factors in overhead beyond our control will require a higher minimum break-even rate than in earlier years.

"6. Increased demands from labor, including wages, unemployment insurance, workmen's compensation, and old age security insurance all are being pressed for higher benefits by labor leaders, constituting the greatest handicaps."

A large producer in Connecticut:

"1. We anticipate the same or a slight increase in the volume of business for 1954 over this year. Competition and profits will probably remain the same.

"2. We shall spend approximately the same amount of money in replacements and additional facilities.

"3. The volume of business in 1953 was approximately 10 percent below 1952, with the distribution as follows:

Highways	75 percent
Railroad ballast & building	25 percent

"4. We are not contemplating any new products.

"5. We can operate profitably at some reduced production.

"6. The principal handicap in our business is the delay on the part of the highway departments with whom we deal in advertising and letting contracts."

A producer of crushed granite and concrete products in the southeast:

"Our company has produced crushed stone for 35 years, and we have manufactured concrete products in

quantity since World War II. We have had many troubles throughout the years and see no reason to become hysterical now because of some chance of our markets softening in the year 1954.

"We have diversified our business to such an extent that we will participate in most building that is done in the areas which we serve. This is applicable to both road construction, commercial construction and to home construction. We produce concrete brick, concrete block, concrete joists, some ornamental concrete stone and so on which is used extensively in our area.

"In the year 1953, for the period January through November, we actually sold more crushed stone than we produced at both of our plants during this period. Of course, the surplus stone came off the stockpiles produced in the year 1952. We are now in the process of building up these stockpiles for spring shipments.

"Our concrete products business has been satisfactory I would say, although not quite as good as in 1952.

"So far as next year is concerned, we believe that we will in all probability have to go back to 40-hr. shifts with which we see nothing wrong."

A New England producer of lime, stone and agricultural limestone:

"I know of no way of insuring as good a year in 1954 as in 1953. We are doing a number of things. We are putting in a modest retirement plan, to assure an average younger age of employees, with fairness to the old. We hope this will result in greater efficiency. We are building up our technical and selling staffs. We are making whatever changes we feel are desirable to effect cost reduction.

"A large part of our expansion program is finished. Our emphasis in 1954 will be largely to advance maintenance efficiency to prevent breakdowns.

"In 1953, volume held up very well, as compared with 1952, except in the last quarter, when we saw a distinct falling-off in agricultural business and some reduction in building. I expect a lower volume in each of these classifications in 1954.

"We are already introducing three new products in the agricultural field, and one new product in the building field, in our new Type S hydrate. We are looking for new markets, but so far see no additional ones which fit into our production picture.

"In the agricultural field, principal handicap is in the financial condition of the dairy farmer. In the building field, the attitude of the national administration toward low cost housing is a handicap."

A large producer of lime in the East:

"By modernizing our equipment, both in our mine and in our plant, we find it possible to reduce our costs of production, at least in two loca-

tions, to the extent of 10 percent. We are also consolidating our supervisory personnel when retirements and advancements make this possible. We will also reduce the over-time paid certain groups of our men, as it will not be necessary to push production in 1954 as it has in the past.

"We will certainly continue normal expenditures for normal facilities to increase our efficiencies, as this is the only way we can take care of the drop in business that is possibly ahead of us in 1954.

"Our 1953 business was 8 percent better in our lime business than the year 1952.

"We naturally have our eyes open for possible new products, or new markets, as they naturally develop, or are developed, by our research department.

"We can operate profitably with possibly as much as a 15 percent to 20 percent drop in business over this year.

"I think we all hope that we will now get back to some good, healthy competition which is necessary to keep us on our toes, and our costs and prices within reasonable figures."

Ready-Mixed Concrete

The answer of ready-mixed concrete producers to the problem of stiffer competition is coming in the form of cost control, greater service and better quality of concrete, diversification and greater sales effort. It is surprising how many producers are inaugurating detailed cost analyses to determine needs for revision in operations. Some are inaugurating public relations programs and stepping up radio and other types of advertising while a few are employing service engineers and many are increasing their sales personnel.

Two-way radio is being adopted in some cases to improve service and there are producers who are preparing to go farther afield for sales. Several companies are entering the concrete block field and in at least one case a new combination ready-mixed concrete batching plant and block plant is being installed. There are also cases where lightweight structural concrete is to be batched which would seem a large potential source of business for the industry.

The ready-mixed concrete industry on the whole is planning to continue normal expenditures for additional facilities and replacements and there is evidence that a number of producers will install larger, more modern plants. There is an obvious trend to increasing the sizes of truck mixer delivery units to reduce costs, and several companies are installing plants in new locations.

About 60 percent of reporting producers said that volume of business in 1953 was greater than in 1952, 10 percent had an equal volume and the balance (30 percent) had reduced vol-

ume. Increases ranged up to 27 percent and decreases reported were modest percentage-wise.

According to our own sources of information on plant-building activity, the industry will continue to expand in numbers of producers, and it is apparent that the volume of ready-mixed concrete sold is much larger than many of the reports published thusfar would indicate. In our separate article on business conditions in the portland cement industry, it will be seen that a great number of large cement manufacturers are selling more of their product to ready-mixed concrete producers than to any other class of users. Many is the cement plant that is shipping in the range of from 40 to 54 percent of its total production to ready-mixed concrete producers. If we were to scale it down to 25 or 30 percent, for an average, there would be at least 60,000,000 bbl. of cement used annually for the purpose at the present rate.

A number of ready-mixed concrete producers are conducting market investigations pointed to the development of new products and some are going into the manufacture of concrete block, precast roof slabs and other products. As far as operating at reduced rates is concerned, the answer to holding profit margins seems to be directed principally toward larger haulage units and reduction in overtime work.

As to handicaps, anticipated cement shortages were mentioned only in areas where abnormally large projects are under construction, notably in Ohio which has the large atomic energy plant and turnpike under construction and in New York State with its Thruway. Price-cutting is becoming a problem in some areas.

Among typical comments were the following:

A producer of ready-mixed concrete and sand and gravel in Minnesota:

"1. We are running detailed cost analyses to determine which phases of the business need revision.

"2. We purchased two 4½-cu. yd. transit mixers this year and plan to repeat next year.

"3. Volume was down 10 percent in 1953.

"4. We will introduce precast roof slabs to this area next year.

"5. We are gearing production for reduced sales.

"6. Local competition is keen and causes reduced prices and extra expenses."

This company added a new concrete block plant in 1953.

Indiana:

"A new ready-mixed concrete batching plant was set up in Ohio in the spring of 1953. It is 25 miles from the older plant, where the trucks are headquartered and only as many as are needed go to the new location from day to day.

A two-way radio system was in-

stalled during the summer, keeping the drivers in constant contact with the dispatcher, thus improving service to the customers."

A California producer:

"1. I am faced with a larger volume this year than previously due to Wherry housing and military expansion in this area. We are however, putting into effect a cost-accounting system so we can locate any leaks that might exist in our organization.

"2. We intend to continue normal expenditures for improvements and expansion to a point that we can take care of our normal business.

"3. Volume was high for 1953. However it was due to highway activity. Approximately 40 percent highway, 40 percent home building, 10 percent industrial and schools, and 10 percent commercial was the distribution.

"4. No new products.

"5. We are set up so we can reduce operating expenses with volume of business.

"6. Handicaps are the possibility of increased prices of cement and maintenance parts and labor, because of the contracts now held which we cannot advance in price."

This company has just installed a new batching plant in Oregon to handle a government project.

A Texas producer:

"Having just assumed the duties of manager of this plant, I cannot be of much help in this year's survey. However we are quite optimistic toward the prospects for 1954 due to the recent relief from a three year drought and we are planning to expand our facilities considerably in the coming years."

An Indiana producer:

"1. In order to sustain profits in 1954 we are cutting expenses wherever possible without lowering our standard of service or quality of product.

"2. Yes, we are prepared to continue normal expenditures for additional facilities and replacements in 1954.

"3. Prices in 1953 held up to those of 1952. However, our volume was much lower than 1952; the largest shrinkage was in industrial building. In 1954 we do not expect a marked change in volume over 1953 in the various classifications.

"4. We will not introduce new products in 1954.

"6. Shortage of business will be our principal handicap in 1954."

A producer of ready-mixed concrete and sand and gravel in Ohio:

"We feel there will be some drop in the sales of ready-mixed concrete and sand and gravel from 1953, but not too serious. Housing is a big part of our volume and its future is not too predictable in advance. We have a big school construction program just getting under way in which we shall have a large share. Other anticipated construction is about normal.



This large Middle West plant has been busy supplying sand and gravel to atomic energy projects

"To assure us of a proper share of available business we shall most likely increase our public relations and advertising. For the first time in many years we are cosponsoring a radio program which began December, 1953, for the winter months.

"We shall continue to spend money for capital equipment as our market demands. Even if volume drops off, we shall make all necessary expenditures for maintenance, to keep our equipment in shape to perform at our past standards.

"Our 1953 volume was more satisfactory than 1952. It was possible to increase selling prices to cover the added cost of labor, parts, cement, taxes, etc. We have practically no highway work. Home building is important as a whole to our volume. As yet we cannot see much change in the volume going to various classes of construction in 1954. We anticipate no new products. We may seek a wider range market than we now serve normally, as a means to offset reduction of volume.

"We can operate profitably at reduced volume. A part of that is answered by more efficient equipment. This year we replaced four 2-cu. yd. transit mixers with four 5-cu. yd. mixers, thus increasing capacity 2½ times with the same manpower. Depreciation is increased but down time and repairs are reduced by the new heavier equipment.

"Our greatest saving in a period of reduced volume would be made through watching over-time more carefully. Wages would be more at regular time with a considerable drop in the over-time premium wage. Maintenance would be performed in a regular work week rather than during expensive overtime hours.

"We feel that ready-mixed concrete producers in Ohio will suffer again

from the cement shortage, more so in 1954 than in 1953 because of the Ohio Turnpike. The shortage in 1953 was not as great as in 1952 and 1951, or as great as we had expected because of the upset schedule of the Turnpike.

"I feel that the greatest fear we have in business today is fear itself. Pessimism about the future can be dangerous, for if one business stops buying, some other business stops selling. With the tremendous population in this country and the tremendous needs of us all for goods in our constantly rising standard of living, there is no reason why prosperous times should not continue. Perhaps not increasing year by year as fast as lately, but a normal healthy growth is possible.

"The Republican Administration has had the time needed to get its feet well planted. I firmly believe it will not fail the people from all walks of life and all classes of people that elected them to give us sound, honest, and visionary leadership."

Acquires Limestone Quarry

REPUBLIC STEEL CORP. recently announced that its Canadian subsidiary, Union Drawn Steel Co., Ltd., has acquired a limestone quarry at Embro, near London, Ont. C. M. White, president of both firms, stated that the 1100 acres of land contain a deposit of high-quality limestone sufficient to supply Republic's open-hearth furnaces for several generations.

Quarry Permit

M. USSERY, Lexington, Mo., was recently granted a special zoning permit by the Jackson County Court to operate an open stone quarry at Atherton and Happy Hollow roads, in northeast Jackson County.

THE BASALT ROCK CO.



A. G. Streblow, president

NAPA, CALIFORNIA, is a small city of about 20,000 population located on the Napa river beyond the northern end of San Francisco Bay. It is in the fruit belt midway between San Francisco and the capital city of Sacramento. All the large cities of the East Bay district including Oakland, Richmond and Berkeley, as well as the more important communities north of the Bay and the city of San Francisco, fall within a radius of 50 miles of Napa by paved highways.

Napa is the home of president A. G. Streblov of Basalt Rock Co., Inc., and the headquarters of that company, which was founded there on September 15, 1924. The company has grown from a very humble beginning and without fanfare into an organization of almost fantastic accomplishment in the field of aggregates, concrete, concrete products and steel products. Its influence is widespread throughout California and has spread over the West Coast. However, it is only within recent years, through licensing arrangements for its prestressed concrete on a national scale and Mr. Streblov's activities as a director and president (1952) of the National Concrete Masonry Association that Basalt Rock Co. has become recognized outside the West Coast. Little of its history and accomplishments is known by many engaged in these industries because the company has shied away from that kind of publicity. It has been content to remain in a small town and go about its business.

Members of the editorial staff of **ROCK PRODUCTS** including the writer have made many trips to Napa over the years and a number of feature-length articles have been published.

Overall view of crushed
stone plant at McNear
Point



as a result, covering specific developments. In each instance, Basalt had come up with advanced ideas in production methods or new products which usually were pioneering ventures. It was willing to pass its ideas on to others in the industry.

In this issue we are privileged to tell the entire story of Mr. Streblow and his company and it is one of the most fascinating that we have had the pleasure to undertake. It is an outstanding example of what can be accomplished under a system of free enterprise, if initiative and energy be applied to put into reality the products of imaginative thinking.

It required a great deal of urging on our part, spread over a period of several years, before Al Streblov would consent to the articles published in this issue. He finally agreed

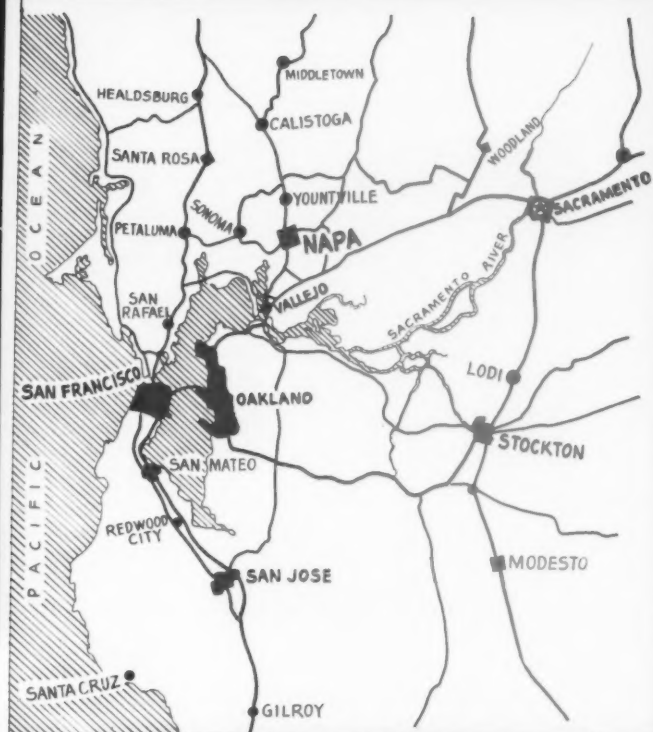
provided that we would be factual rather than allow our enthusiasm to reflect in superlatives. He is proud of his key personnel, department heads and fellow officers, and expressed the wish that we give deserved credit to these men.

Basalt Rock Co. does have aggressive, experienced men in top spots but, to a large measure, the organization has been built up through Mr. Streblov's own resourcefulness over the years. It was he who started from scratch in the early years of the business when crushed stone was the only product and expanded into sand and gravel, rip-rap, ready-mixed concrete, concrete products, the building of barges and ships and other products that were the fore-runners to many new products to come. It was his initiative, foresight and willingness to

STORY

By BROR NORDBERG

Originally a crushed stone producer, this company has diversified its operations to include rip-rap, sand and gravel, ready-mixed concrete, concrete block, prestressed concrete, lightweight aggregates, concrete pipe, precast concrete homes, ship-building and steel products



gamble that led to building a highly diversified, substantial business that provided the opportunities and required the gradual building up of a top-flight organization of key men. The greatest period of growth of the company, by far, has taken place since World War II but it was in the earlier years in particular, while opportunities were being built to broaden operations, that the men now in key positions were in training. They had "arrived" when the company was ready to launch its postwar expansion, which has been tremendous and a program requiring a well-knit organization of men with special talents.

We cannot be truly factual in these articles without stressing the accomplishments, policies and attributes of Al Streblow, for therein lies much of the story of Basalt Rock Co. To a man, his own organization would credit him with being responsible for the success of the company, because he has come up with the major basic ideas that have opened enlarged fields of accomplishment. He is a man of advanced ideas and he has been willing to gamble that his ideas could be turned into profit. The growth of the company is proof that each major move was a sound decision.

Al Streblow has put tremendous driving energy into every undertaking of the company and that is one reason why his organization is outstanding. That characteristic is reflected through the ranks. He is a top-flight merchandiser, an expert on production whether it be aggregates, concrete products or steel, and is well versed in every phase of each divi-

sion of the company. What's more he takes an active part in every activity and we doubt if he could be stumped by any questions, however detailed, concerning any part of the entire business.

Policies-Diversification

Diversification of products and absolute insistence on highest attainable quality of products are fundamental to the business. The company is constantly seeking out new products to produce or manufacture, if they be basic materials to tie in with what it has to sell which is concrete and steel products.

The statement often made that this or that company is stressing quality of product is frequently meaningless because more often than not stress on quality of a product is limited to the best that can be done with raw materials that may be inferior. With Basalt, a fortune has been spent purely in the interests of quality so that the company could stand back of its products with pride and gain the fullest confidence of its customers. As a specific example which we elaborate on later, a very economical source of natural lightweight concrete aggregates was completely discarded for use in its products, in favor of a manufactured lightweight aggregate that was developed after exhaustive research and great expense. The natural aggregate proved to have physical weaknesses that resulted in excessive volume change, by Basalt's standards, so that was a problem which had to be licked.

It is this kind of business philoso-



Cars of sand and gravel on siding at Healdsburg plant. Capacity of plant is 500 t.p.h.

phy that is characteristic of the company and which has enabled it to go forward. One of the major new developments of 1953—the manufacture of complete houses of precast concrete panels—would have been impossible had the company not been successful in developing a high-grade, lightweight aggregate.

Growth in volume of business has been due far more to diversification than the unprecedented demands of recent years for all types of building

BASALT ROCK

Scope of Operations

The diversification of operations and products, and the locations of the various plants at present are illustrated on the accompanying schematic drawing. There are two large capacity crushed stone plants in operation which produce commercial crushed stone, rip-rap and all classes of jetty stone. Production of these large stone sizes is not a side-line activity but is highly mechanized and set up for meeting large tonnage contracts. One of the crushing plants is at the original location in Napa, and the second is at McNear Point near San Rafael, which is a little north of San Francisco on the west side of San Francisco Bay. Both plants have been enlarged and extensively modernized in recent years. Capacities for commercial stone are 250 t.p.h. at Napa and 350 t.p.h. for the newer plant at McNear Point. The latter



Edmond F. Brevelli, vice-president of Basalt Rock Co., Inc.

materials. Whereas many companies in all lines of endeavor have increased their volume of sales in lines that have been more or less standard for them, Basalt has created entirely new products by research and development within its own organization and built markets for them through skillful merchandising.

The precast concrete house, new types of reinforced concrete pressure pipe, welded steel pipe, Stresterete assemblies of prestressed concrete masonry units and the new lightweight aggregate—each of which we discuss later herein—are some of the examples of pioneering by Basalt. In recent years, concentration has been upon new outlets for precast concrete, which Mr. Streblow has always felt to have great potential to challenge the imagination. The precast concrete house is the latest in a series of developments to further the use of precast concrete for its structural values.



Ernest Hlsley, vice-president in charge of operations

plant has a capacity of 750 t.p.h. in producing core rock for jetty construction.

Sand and gravel are produced at Healdsburg, some 55 miles north and east from Napa. This plant, too, has undergone expansion and modernization over the years and now has a rated capacity of 500 t.p.h.

Basalt owns and operates four ready-mixed concrete plants which are located at San Francisco, Vallejo, Napa and Healdsburg. Forty-five mixer trucks are in operation. In addition, the company owns three ready-mixed concrete plants which are operated under lease, at Santa Rosa, Sonoma and Petaluma. Hot mix asphaltic concrete is produced at Napa and Healdsburg for the convenience of contractors.

Two large capacity concrete block plants, which are among the finest in the world, are owned and operated by the company. One is at Napa and the second at Stockton which is about 50 miles south of Sacramento and from

which the rich San Joaquin Valley is served. In addition, there is an affiliated operation, Rocklite Products, at Ventura, Calif., about 50 miles up the coast from Los Angeles, where expanded shale, lightweight aggregates and concrete products are produced to serve the southern California area. This operation was set up after World War II as a separate corporation under an unusual arrangement whereby it was organized by the key employees and management of Basalt to operate as their own business. Key employees own considerable of the stock. Officers of Basalt Rock Co. are on the board of directors.

Each of the three plants has a rated capacity of 14,400 equivalent 8-in. units per 8-hr. shift. Some 160 sizes and shapes of concrete units are produced at each location, and the overall marketing area covers a major part of California. A well-equipped research and testing laboratory was built at Napa as a means to control the quality of concrete products and aggregates and for the purpose of developing and promoting new uses for lightweight aggregate concrete.

Stresterete prestressed assemblies of precast units for floor and roof construction and for siding are manufactured at Napa. This product, which we cover in a separate article, is patented and is gaining wide acceptance nationally. Basalt has 11 licenses in the United States and Canada who are manufacturing or preparing to manufacture Stresterete. Every major population center including New England is represented, as well as the Los Angeles area which will be served by the Rocklite plant at Ventura.

Precast, prestressed concrete houses are manufactured in a new plant at Napa. Nine miles to the south, at Napa Junction, is the ultra modern new lightweight aggregate plant.

Basalt has a steel fabrication plant and welded steel pipe plant at Napa.



Donald O. McCall, vice-president in charge of engineering



John Anderson, secretary-treasurer

BASALT ROCK



Left to right: Malcolm McIntyre, sales manager for sand and gravel and crushed stone products; Henry Wilkins, sales manager of the Steel Products Division; Fred Feliz, sales manager for concrete products; and Chas. W. Gillies, assistant sales manager



Hector MacLean, advertising manager

and has recently completed the building of a new steel pipe plant and reinforced concrete pressure pipe plant at Fontana near the Kaiser steel plant in San Bernardino County. The bulk of sales of welded steel line pipe from the Napa plant are handled by the Kaiser Steel Sales organization and marketed under the trade name of "Basalt-Kaiser Pipe." There have been some tremendous contracts filled to date.

Basalt is also in the fuel oil and propane business, a distributor for

oil burners, handles various other manufactured items, markets its own masonry paints, manufactures oil and water tanks, well casings and other steel products. At one time it was in the road oil contracting business. A small side-line operation is the manufacture of a pozzolan made from calcining a natural material. As yet, the product has had limited local use in the manufacture of concrete pipe and in the construction of small dams. Research on the properties and uses of the pozzolan is underway as part of the company's program to improve the properties of concrete. The company employs 1200 people including resident salesmen in the important cities.

There have been two main lines of evolution in the development of Basalt's diversified activities. In one, the progression was from crushed stone to rip-rap to the manufacture of steel barges to shipbuilding to steel products to welded steel pipe and then to reinforced concrete steel cylinder pipe. In the other, starting in 1936, the sequence has been from concrete block and natural lightweight aggregates to Stresterete to manufactured lightweight aggregates and then to complete precast, prestressed lightweight concrete homes, industrial walls and channel slabs.

The two main lines of development dovetail. Progress in the building of



Carl Rollins, director of research

plants for the many products added in recent years has depended upon the company's ability to manufacture special machinery of original design and the fabrication of steel and prestressed concrete structures and bins. Stresterete and precast houses require steel, including steel frame-work, sash and door frames, load-bearing members, reinforcing and many other items which are manufactured and quickly available.



Left to right: G. W. Kay, superintendent of Basaltite production at Napa; John Cassani, superintendent of the Napa quarry operation; Louis Cas-sayre, production superintendent of the Steel Products Division; and Jim Kennedy, superintendent of the Healdsburg sand and gravel plant

BASALT ROCK



Left to right: Harold Price, sales manager of the Stresterete Division; Walter J. Browell, manager of San Francisco operations; and Jack Streblow, in charge of the new Precast Division

Each activity has expanded into another offshoot which has expanded still into another as the company has sought to minimize the fluctuations of business volume by seeking new outlets to hold and build its organization.

From a small beginning in 1924, when a small quarry operation was started at Napa, the company grew to a volume of business that exceeded \$15 million in 1951. Strikes and government restrictions reduced the volume slightly in 1952 but new activities launched in 1953 constitute one of the most ambitious programs in the company's history and have tremendous sales potential that has not yet been realized. One project comprises the new steel pipe and reinforced concrete pressure pipe plants at Fontana, Calif. Contracts involving millions of dollars of pipe are in process of fulfillment there, which alone guarantee full capacity operations for a year ahead.

The new expanded shale, lightweight aggregate plant at Napa Junction has high capacity. It will not only supply the company's own requirements, but be a source of lightweight aggregates to ready-mixed concrete plants throughout the Bay area. That is a field that has enormous potential. Also, in 1953, production of concrete homes of prestressed concrete started in mass-production.

No additional common stock in the company has been issued since incorporation in 1924 when 10,000 shares of common stock were issued at \$25 par value per share. However, the shares as of now have been split 48 for one. Extra dividends in the form of one percent of common stock have been paid for the last two years. This extra plus the regular annual 36¢ cash dividend constitute an annual dividend almost equal to the original price per share.

Organization

Organization-wise, separate divisions of the company have been set up for the purpose of management and efficiency. They comprise the Basalite Division, Stresterete Division, Steel Products Division, Shipbuilding Division, Aggregate Division, Fuel Oil Division, Precast Division. The latter is the newest and embraces the manufacture and merchandising of the new packaged concrete house and other related products that will be manufactured in the new plant. Concrete products manufactured at Napa and Stockton and the new lightweight aggregate produced at Napa Junction carry the trademark "Basalite" and come under the Basalite Division. That trademark was first introduced at the time of the San Francisco International Exposition in 1939 when Basalite concrete products were used

to build a demonstration house on Treasure Island.

Officers-Key Personnel

While president Streblow has unquestionably been dominant throughout the years in building the Basalt Rock Co. into a well-diversified, substantial business, and while he has personally initiated new developments far advanced for the industries in which the company is engaged, he has built a fine organization of men which must be given large credit for turning ideas into practice and profits.

Basalt is a dynamic company that gets things done, once the decision is made to put an idea into practice, and that requires top men in the key spots. It is basic to the company that key men are the most important asset in the business and that they be given the authority to act and be provided the incentive to move forward in the organization. There is a bonus plan in operation, based on accomplishment, which applies to department heads and those responsible for production.

Basalt has a very capable engineering department, well-qualified department heads and seasoned production superintendents at each plant. With very few exceptions, these men have come up through the ranks and nearly all are natives of Napa or nearby communities. It is surprising that many of the men, of comparatively little formal education as such, have become among the most informed men in their specialties anywhere. Even in the field of engineering, in the design of intricate forming rolls and presses for steel pipe manufacture as an example, the company has come up with men of high school education to design and build machinery that is completely original. The majority are men young in years who have been trained within the organization.

As stated earlier, Mr. Streblow has been president of the company since 1926 when he was barely 30 years of age.

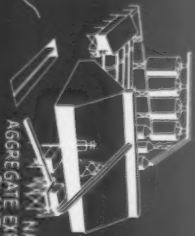
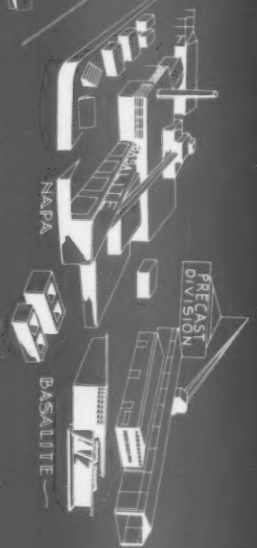


Left to right: Alex Lammel, manager of the Stockton plant, with Carl Butler, production superintendent; Wm. Wing, superintendent of the ready-mixed concrete plant at Vallejo; and George Noonan, left, superintendent of the new Basalite lightweight aggregate plant at Napa Junction with John Meloni who is general superintendent of that operation and superintendent of the McNear Point quarry. Note the rounded shape of the new expanded shale aggregate

Graphic Presentation of all
operations of Basalt Rock Co., Inc



NAPA PIPE
MILLS NO 1-2&3



AGGREGATE EXPANSION
PLANT



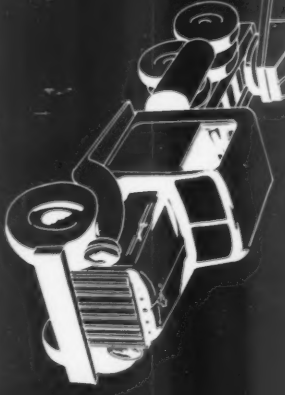
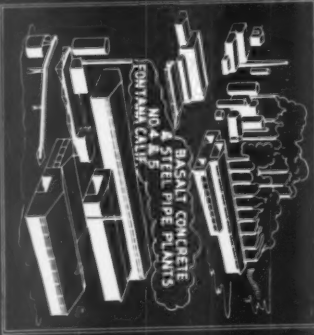
SAN RAFAEL QUARRY
MCNEARS POINT

SAN FRANCISCO

OAKLAND

STOCKTON

BASALITE



BASALT ROCK

Edmond F. Brovelli, a vice-president for many years, was in on the ground floor when the company was started. He walked the streets with Mr. Streblow in the early days selling stock so that the company could start its expansion. Mr. Brovelli concentrates his efforts on general administrative functions, the handling of labor relations, and the financial end of the aggregates and ready-mixed concrete operations. He is president of Rocklite Products, and a member of the board of directors of the National Sand and Gravel Association.

John Anderson, secretary-treasurer, started with Basalt in 1935 and came up through the ranks to assume important responsibilities in all activities.

Ernest L. Ilsley was elected vice-president in charge of operations in 1953. Mr. Ilsley's first job was with Basalt where he started out as a truck driver 20 years ago. He did not remain a truck driver very long, and over the years became engaged in practically every phase of plant construction and operation. He was responsible for the building of many of the outstanding plants of recent years which we illustrate in these pages and, in each case, they were completed ahead of schedule. His latest achievement was completion of the Fontana pipe project in record-breaking time.

Donald O. McCall was elected vice-president in charge of engineering in 1953 after serving a number of years as chief engineer. Mr. McCall is the son of an early employee of the company and started out with Basalt by spending his summers working for the company. He started the engineering department and, with Mr. Streblow, played a large part in the development of Stresterete. Mr. McCall designed the present sand and gravel

plant at Healdsburg, the crushed stone plants, all the concrete products plants, self-unloading steel barges built before and during World War II and has been in charge of all engineering developments of recent years.

Walter Fawcett, vice-president, was the original vice-president of the company. He is one of the inactive members of the board of directors along Mrs. A. W. Stremmel and Follett Morris. Mr. Streblow and Mr. Brovelli are the other two members of the board.

Department Managers

Harold Price, sales manager of the Stresterete Division, supervises the efforts of sales personnel in the merchandising of Stresterete, works closely with dealers and distributors, and with licensees over the country.

Malcolm McIntyre, sales manager of the company during the years when aggregates were the main products, is sales manager for sand and gravel and crushed stone products. Fred Feliz is sales manager for concrete products and C. W. Gillies is assistant sales manager of that division. Jack Streblow has served as assistant sales manager under Fred Feliz and is now in charge of the Precast Division.

Alez Lommel is manager of the Stockton plant, Walter J. Browell is San Francisco manager, and Henry Wilkins is sales manager of the Steel Products Division. Carl Rollins is director of research and Hector MacLean is advertising manager for the entire company. E. A. Peterson is manager of Rocklite Products in southern California.

Production Superintendents

Louis Cassayre, for many years superintendent of the Napa quarry, is

production superintendent of the Steel Products Division; James Kennedy is superintendent of the Healdsburg sand and gravel plant; John Cassani is superintendent of the Napa quarry operations; Jeff Kay is superintendent of the Basalite concrete products plant at Napa; and Carl Butler is superintendent of the concrete block plant at Stockton.

John Meloni, superintendent of the McNear Point quarry, is serving as general superintendent of the new Basalite lightweight aggregate plant at Napa Junction and George Noonan is superintendent. William Wing is superintendent at the Vallejo ready-mixed concrete plant and Homer Barnes is production manager of the new Fontana operations.

General meetings covering all phases of the business are usually held on Saturday mornings. Special meetings are called to consider engineering and production problems when new plants are being considered or under construction. Sales meetings are held monthly. Mr. Streblow is in attendance at all these meetings.

Pioneering

The pioneering of new ideas and the development of new products has always been characteristic of the company and we cite a few examples.

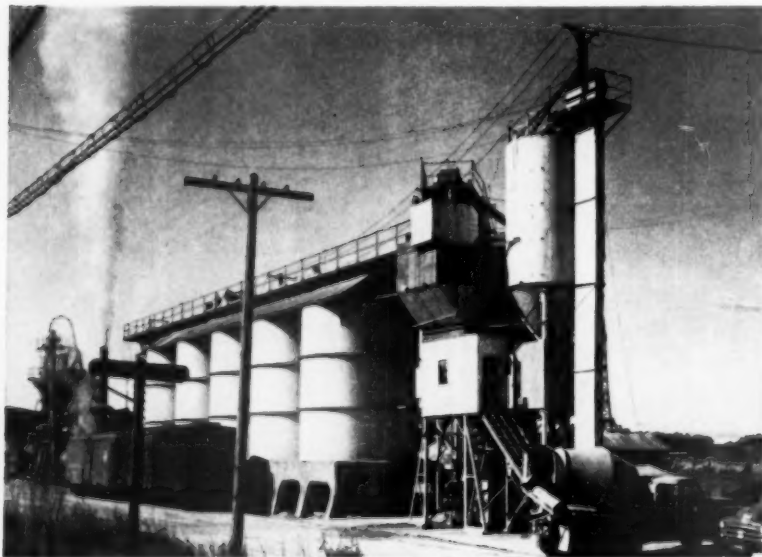
Basalt was probably the first company in the crushed stone industry to use aerial tramways for intra-plant transportation of stone and it was among the very first companies to operate truly heavy-duty trucks in a quarry. To our knowledge, it was the first company to perfect a method for mechanical sizing of big rip-rap stone up to 3000-lb. size. It developed an adjustable manganese steel "tuning fork" grizzly for the purpose in 1936.

The self-unloading steel barges developed to transport and place jetty stone were entirely of original design and among the very first to be built in this country for the purpose of jetty construction.

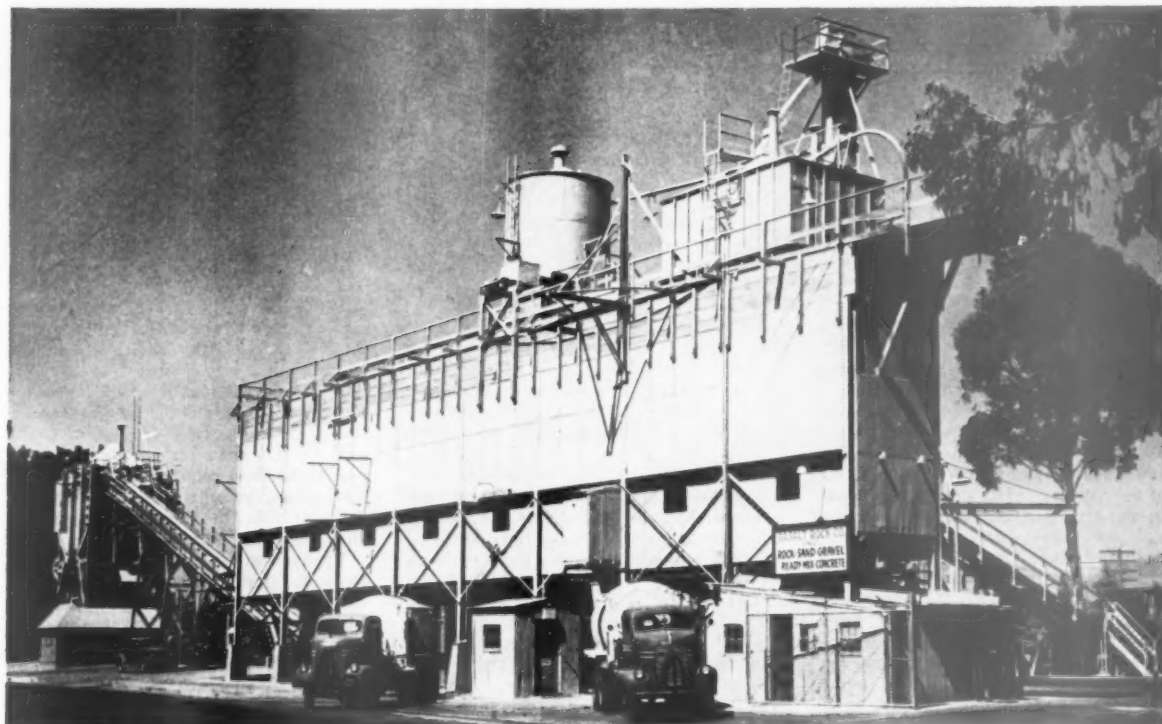
All the machinery for the manufacture of welded steel pipe including ingenious forming rolls and hydraulic presses is of original design and was manufactured by the company. Much of the specialized machinery for various products of concrete, and plant structures had to be custom-designed and built in the company's shops.

Basalt was one of the first companies to enter the ready-mixed concrete field to any extent. It definitely pioneered high class concrete masonry construction in the State of California and had a significant part in the development of that industry into importance in the building field nationally.

In his search for a concrete block machine that would not crush lightweight aggregates (pumice in this case), Mr. Streblow went to Germany and came back with a machine which compacted concrete into the molds by



Ready-mixed concrete plant at Napa. Asphaltic concrete plant may be seen in background



Ready-mixed concrete plant at Vallejo, Calif.

a jolting action. The principle of operation was new to this country and it proved effective in the manufacture of lightweight concrete masonry units. It generated great interest and was the object of study by machinery manufacturers, playing a large part in stimulating interest in the development of modern, high production machines of the vibrating type.

In the field of merchandising, the demonstration house at San Francisco's International Exposition in 1939 was one of the very first that was effectively promoted to stimulate tangible results. The use of portable small scale models of concrete masonry houses built to many architectural designs was a completely original selling tool, for display throughout the company's marketing area.

Basalite expanded shale aggregate was developed, to have rounded particles with impervious outer coating and vesicular interior, which proper-

ties are extremely important to improved concrete performance and to expanding the uses for lightweight concrete. In the field of structural concrete came the development of Strestcrete prestressed assemblies of standard concrete masonry units with many adaptations in the construction of "tailor-made" concrete buildings. Finally, in 1953, the fabrication of complete concrete houses was started as part of one of the most ambitious programs in the company's history.

Chronological Development

With all this diversification it is small wonder that there is curiosity about the name of the company and use of the word "Basalt." The explanation is simply that the company was first engaged in the production of crushed stone. Rock in the quarry happened to be basalt which, for the benefit of many of our eastern readers, is the geologic name for a dark

and very dense, fine-grained rock of volcanic origin.

Operations began in the basalt quarry in 1924. At the start Mr. Streblow ran the shovel and Mr. Brovelli did the book-keeping and stenographic work. There was no office and the shovel was often run at night in order to stagger the operations. The weekends were used in trying to raise capital.

The original plant had a capacity of 100 t.p.h. and the production was largely of crushed ballast. A sufficient volume of business was built up over the next several years to permit the purchase, in 1931, of the Russian River Gravel Co. at Healdsburg and building of a new, more modern plant at that location. Reason for this move was that there was a growing trend by specifying bodies in favor of rounded coarse aggregates for certain classes of construction. One of the large, early contracts was supplying the aggregates for construction of the north pier of San Francisco's Golden Gate Bridge.

Shortly afterwards, a concrete batching plant established at Hamilton Field Airbase north of San Rafael, became the forerunner to establishment of ready-mixed concrete plants at strategic locations throughout the Bay area to protect the markets for aggregates.

In December, 1933, property was leased and a quarry opened to supply rip-rap for the dike extension to Mare Island Naval Base near Vallejo. Fill



Fleet of ready-mixed concrete trucks at Napa

BASALT ROCK



Fleet of dump trucks at Napa plant

and rip-rap for the approaches to the San Francisco-Oakland Bay Bridges were supplied in 1934. The transport and placing by barges was sublet.

Basalt purchased the San Francisco dry batch plant of John Cassaretto in April, 1934, largely to obtain tugs and wood barges needed for its developing rip-rap and jetty stone business. Later in that year, a plant was built at that location to batch concrete for transit mixing.

A contract was awarded the company in April, 1936, for rip-rap to build a rock wall at Treasure Island, where the San Francisco International Exposition was to be held. The contract called for 207,000 tons including both armor and core rock, to retain fill for this man-made island. Another contract, of 150,000 tons, followed for extension of the breakwater at Mare Island Naval Base, which was the first job on which self-unloading barges were used.

Large contracts for rip-rap and jetty stone developed along the Coast during the late 1930's and into the 1940's, with the result that the company started to build self-unloading steel barges as required to meet the need. The company became the largest commercial producer of rip-rap and jetty stone in the United States at the time.

Among the contracts, in addition to those mentioned, were separate ones for 600,000 tons and 1,000,000 tons for the Alameda Naval Base and many smaller tonnage jobs including supplying the rock for bank protec-

tion work on the San Joaquin and Sacramento rivers. A rock deposit was leased at Point Richmond to supply the first Alameda contract. Core rock was produced at that site and face rock was delivered in barges from Napa. This quarry was condemned for a shipyard to be built on the Lower Bay so, in 1939, a quarry was leased at McNear Point primarily for the purpose of a rip-rap plant.

Self-unloading barges built to haul and place jetty stone were built in capacities of 750 and 1000 tons each. They are hoppers for their entire length and have a longitudinal belt conveyor below extending the entire length of the barge. The belt conveyor is covered over with removable sectional steel plates which carry the load, and which are removed consecutively from one end to drop the stone on the conveyor belt when unloading. The belt conveyor is inclined at the bow to gain needed elevation for placement of the stone.

Barges are loaded with core rock by belt conveyors at the McNear Point quarry. Cap rock and face rock are loaded and hauled over ramps to dump into the barges, at either the Napa or McNear Point quarries. Usual practice is for a tug to tow the barges in pairs to the point of placement. Basalt manufactures derrick barges for placement of large cap rock and face rock, and also bottom-discharge types to discharge core rock to the lower levels in building up a jetty.

The company's activities in supply-

ing large stone are not confined to the San Francisco Bay area. Its equipment, including cranes and trucks, have been transported by barges up the coast to handle large contracts. One such noteworthy project, at Crescent City, Calif., just below the Oregon state line, required the 1946 and 1947 construction seasons to complete. On that job, the Corps of Engineers furnished the deposit of stone.

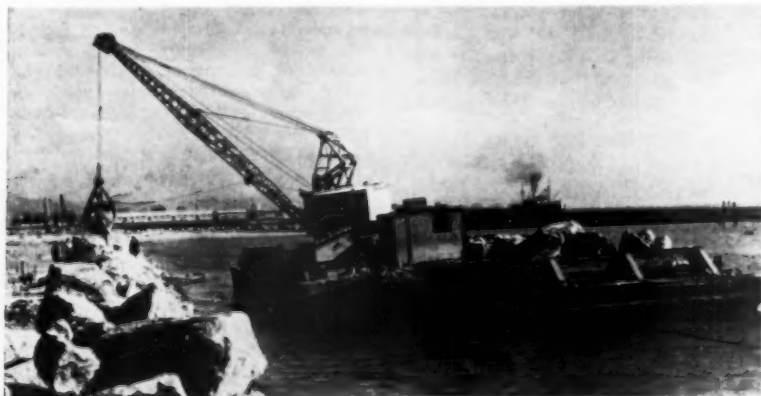
Production of rip-rap and large stone for jetty construction is a continuing business with the company, by virtue of the fact that its quarries are peculiarly suited for its production. The rip-rap quarry at Napa has "boulders" within the mass and the rock, when blasted, breaks with a minimum of slabbing into excellent sizes and shapes for cap rock and face rock.

Ship-Building

Basalt's building of steel barges for its own use, beginning in 1939, soon led to shipbuilding. It was at the time when the United States was entering the early stages of the emergency leading to World War II. Soon, the company's experience and facilities were adapted to building barges for the U. S. Navy. In July, 1940, the company was authorized to build its first steel barge for the Navy and, later that year, contracts were awarded for many more. A number of 1500-ton barges were built before Pearl Harbor for use in the South Pacific, one of which was blown up by the Japanese and four of which were used to raise the battleship Oklahoma.

Among vessels built in the company's shipyard were all-steel "yard craft," 800-ton YF Series self-propelled freighters and 10,000-bbl. YO-type fuel oil tankers. Then, the Navy had need for enlarged facilities at Napa and a complete shipyard for shipbuilding, maintenance, reconversion, and dry docking was built for coastal vessels of all types. One of the contracts was for type ARS salvage tugs, costing many millions of dollars. All contracts were awarded by competitive bidding or on fixed price negotiated contracts.

Within a year after the new shipyard was built, emphasis shifted to the repair of LST and LSM damaged ships and complete overhauls. Shipbuilding was completed in the 1941-



Placing jetty stone, using barge-mounted crane with grapple-type bucket



Loading jetty stone into steel barges at McNear Point quarry

1944 period and the scrapping of ships followed.

The yard was built on the east bank of the Napa River, 12 miles above the Mare Island Navy Yard, on land owned by Basalt Rock Co. It had a 1000-ft. concrete sea wall which served as an outfitting dock and had three dry docks 280 ft. long and one 450 ft. in length. Basalt Rock Co. was one of the first shipbuilders to receive the Navy "E" from the Navy Department Bureau of Ordinance, in February, 1942, and it later received the Army-Navy "E" award with two stars in recognition of an outstanding production record.

Upon completion of the Navy contracts, the decision was made to build an organization and develop business to take the output of the enlarged steel fabrication plant. Steel tanks for water and oil storage, bins, well casings and other similar items were among the products added. Also, a great amount of steel was fabricated and specialized equipment made for the company's own use in plant expansion.

The need for a welded steel pipe plant on the West Coast to manufacture line pipe for the transmission of water, petroleum and gas was recognized and the company made the decision to set up a plant at Napa for the high capacity production of butt-welded steel pipe. Company engineers designed the necessary special machinery and equipment, and it was built, and all manufactured in the company's plant.

The Basalt steel pipe plant is considered one of the most modern in the United States. It has a capacity for 18,000-20,000 tons of 26-in. diameter pipe per month and is equipped to manufacture high pressure steel pipe from 12 to 36 in. diameter and up to 40 ft. in length. The first major job was a 30-mile water supply line from Conn dam into Napa. Soon after, in 1949, an arrangement was completed with Henry J. Kaiser Co. whereby

the Kaiser Steel Sales Organization acts as the sales outlet for steel line pipe manufactured by Basalt at Napa, as mentioned before.

Some very sizable contracts have resulted. One line of 26-in. pipe alone required 260,000 tons of pipe to build a line for a distance of 1400 miles reaching from McNally, Texas, to the State of Illinois. Other lines of "Basalt-Kaiser" pipe are bringing gas and petroleum from Southern Texas and Louisiana fields into other northern areas. Large tonnages of pipe are currently being exported into Asia.

New Pipe Plants

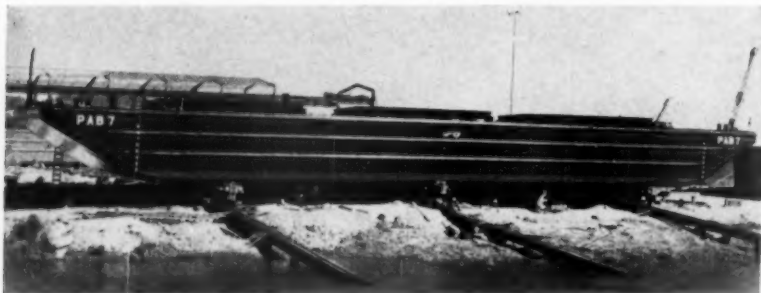
In 1952, the Steel Products Division of the company was awarded a contract in connection with the San Jacinto-San Vicente Aqueduct, known as the San Diego Project, to supply reinforced concrete pressure pipe for a 28.6 mile pipeline to bring water into the city of San Diego. S. A. Healy Co., Chicago, Ill., is contractor for the line and Basalt Rock Co., the subcontractor for the pipe. Two types of pipe were specified—a reinforced concrete pipe of the steel cylinder type to withstand static heads of from 100 to 650 ft., and concrete pipe without the steel cylinders for heads 100 ft. or less. Sizes being manufactured are 54 in. in diameter by 16 ft. in length and 48-in. diameter by 20 ft. in length. The contract is now being filled.

Completely new production facilities were installed at Fontana near the Kaiser steel plant, in 1953, to fill this contract. This involved building and equipping an ultra-modern concrete pipe mill and a separate, adjoining steel pipe mill for the fabrication of the welded steel cylinders, steel joint rings and reinforcing assemblies. Both plants were finished and completely equipped and into production the latter half of 1953, construction having started the first of the year. This was a remarkable feat when the magnitude of the project is considered.

The concrete pipe mill is 750 ft. in length, has a modern concrete batching plant, uses vibration for placing the concrete and has a capacity of 892 ft. of 48- and 54-in. reinforced concrete pressure pipe per day.



An ARS salvage vessel under repair at Basalt Rock Co. shipyard



One of the large steel barges ready for launching

The steel in the steel cylinder pipe serves to take the tensile stresses and the concrete protects the steel against corrosion. The machinery and buildings were manufactured at the Napa steel plant. A laboratory for the testing of aggregates, concrete cylinders and welds of the steel plate was established. A separate illustrated article in this issue by M. W. Loving describes production of these pipe (see page 136).

The Aqueduct contract was of sufficient magnitude to guarantee full capacity operation at Fontana for a year in advance. Both plants are on a 35-acre site and were built as per-

manent plants to serve the southern area. The new welded steel pipe plant, being equipped to manufacture welded steel pipe in the larger diameters, greater than 30 in., will make segmental pipe of extremely large diameters for use in hydraulic penstocks. Also, it will supply large pipe segments to be shipped to Napa for welding, testing and finishing. At this time 73-in. diameter steel pipe are being manufactured in lengths of 32 ft. for the Metropolitan Water District of Southern California. Sales of pipe manufactured at Fontana will be on contracts handled directly by the company.

Concrete Products Developments

DUE TO THE CHARACTERISTIC PEAKS AND VALLEYS in the aggregates business, Basalt Rock Co. started the manufacture of concrete block in 1936. A factor in this decision was discovery of a large deposit of pumice on the company's property at Napa, available as a source of economical aggregate for lightweight, load-bearing units.

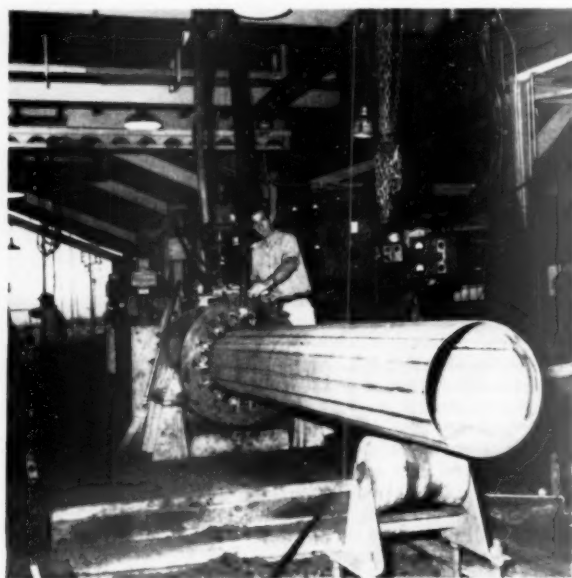
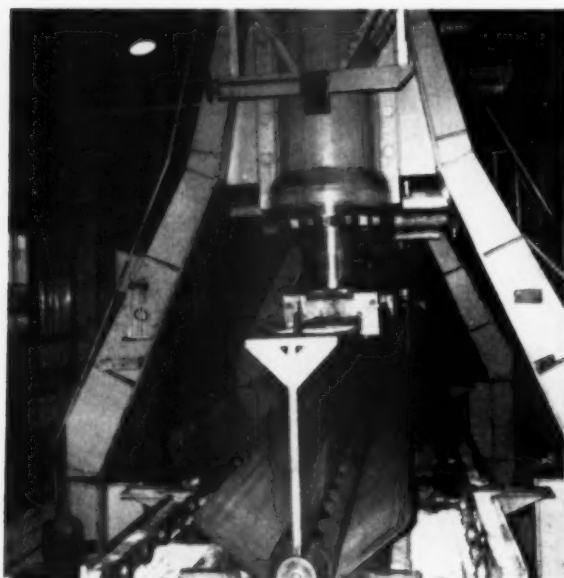
Basalt's entry into this field was against stiff opposition. Lumber was the traditional basic building material, with the result that building supply dealers were not interested in concrete products. After several years of operating at a loss, the company set out to do a job of pioneering. It launched one of the most ambitious programs of promotion that the in-

dustry has seen. Today, the company is one of the largest concrete masonry producers in the world and has production facilities that are unmatched anywhere.

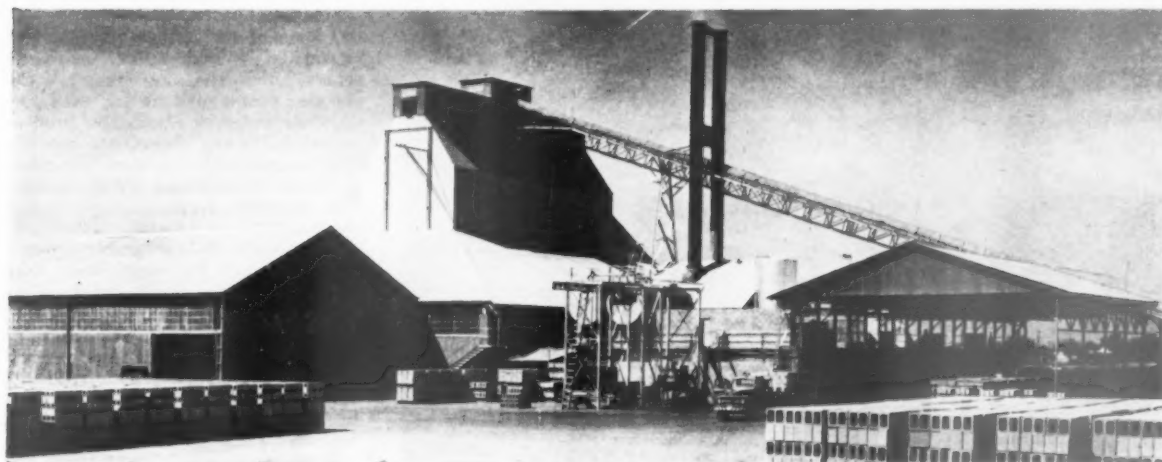
The turning point came with the San Francisco International Exposition on Treasure Island, in 1939, where the company collaborated with the San Francisco office of the Portland Cement Association in sponsoring a demonstration home. It was called the "Californian" and was of the rambling ranch-type, built completely of "Basalite" units used in varied applications even to having acoustical block and concrete shingles. The home was a work of art, and was so effectively promoted during the exposition, and by advertising afterwards, that the word "Basalite" became a by-word almost overnight. We were there personally and, to this day, we have not seen any demonstration concrete home strike the imagination of the prospective home owner like the "Californian."

From 20,000 to 25,000 people visited the house each week. Admission was free and none were required to register. Construction was described over a loud-speaker and folders were distributed. Twenty-five good prospects a day were developed of which ten were immediate prospects for homes. Many people from other states were there and initiated into the merits of concrete masonry homes. The house was advertised widely in magazines and a plan book was issued.

It was in the late 1930's when Mr. Streblow made the trip to Germany where he had heard that pumicite lightweight concrete block were being extensively made. Tamping machines had not worked out satisfactorily because they fractured the pumice



These two views of steel pipe plant at Napa illustrate equipment developed for mass production of welded steel pipe



Plant for manufacture of concrete masonry units at Stockton is one of the finest in the United States

aggregate, and he was seeking a better method of manufacture. He came back with a specially-built machine from A. Syre, Bendorf am Rhine, which operated on a combination of jolting and tamping.

It made five 8 x 8 x 16-in. units or six 6 x 8 x 16-in. partition block per cycle, using oiled fibre-board pallets inserted from one side of the machine. A pallet carried through to the other side on a conveyor, moulds were dropped on it mechanically and filling done by a hopper moving across the top of the molds. The machine platform supporting the molds was then jolted, followed by tamping, after which the molds were refilled, tamped and the molds stripped. This machine proved much more satisfactory than the older tamping machines and was adaptable to making special shapes. An English machine for the manufacture of cambered concrete shingles was also brought from Europe.

Always on the alert for new outlets, the company adapted its German machine for the manufacture of 42- x 8- x 24-in. acoustical units in the early 1940's, which were used in the construction of airplane engine test-

ing cells. The units were of open-textured "popcorn" type concrete set in mastic, and were very effective in deadening sound. This business was temporary but on a national scale. Three of the German-type machines were stationed in the East until 1945 where they were moved between jobs. A superintendent was in charge who had the nucleus of a working crew. Local men were hired at each site.

The first plant setup was in 1940 at Allentown, Penn., using lightweight slag available from Bethlehem Steel Co. in producing acoustical block for Wright Aeronautical. Later, plants were established, in the East, at Buffalo, N.Y.; Detroit, Mich.; Indianapolis and South Bend, Ind.; Cincinnati, Ohio; and Kansas City, Mo., from which Industrial Sound Control of Hartford, Conn., was the sales outlet.

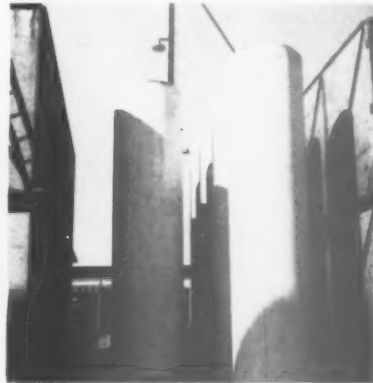
Wright Aeronautical, Pratt Whitney, Allison, Ford, Chevrolet and Chrysler were among customers and units were also made for engine test cell work in San Diego, Calif.; the Panama Canal; Ogden, Utah; Alameda, Calif.; Corpus Christi, Texas; and Sacramento, Calif. Between 6 and

7 million sq. ft. of acoustical block were sold for this application.

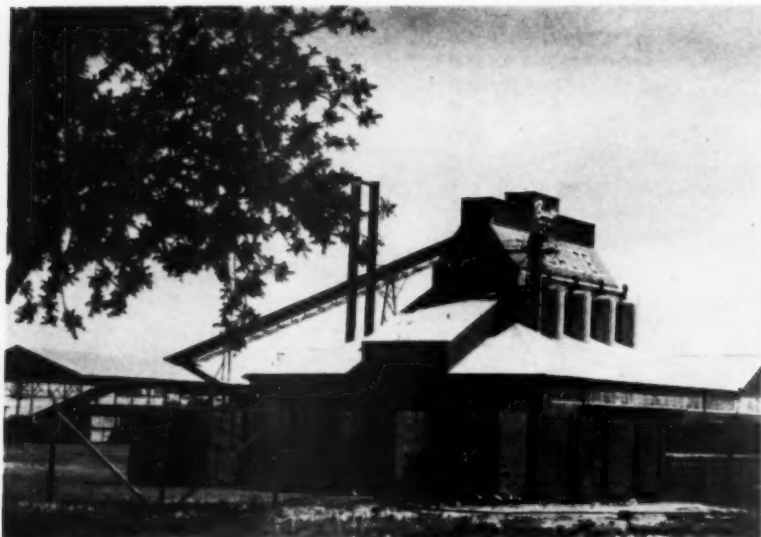
Merchandising during the late 1930's and early 1940's was concentrated toward breaking down the resistance to concrete masonry. It was done by the use of scale-model houses, demonstration homes, consistent advertising of informative and educational character, sales promotion and by building up a sales force of men qualified to promote the idea of concrete masonry. These men are residents in their own sales territories.

The use of scale model homes was, and still is, an innovation in the merchandising of concrete masonry. Fourteen designs of these small model homes were built at a cost well into five figures. They are one-story units with various floor plans and roof types and were built on a scale of 1½ in. to the foot, to be about the size of a desk top.

Every detail of a home is carried out to scale, and the homes were built under the direction of highly talented interior decorators. Each home has twin beds, book cases, reading lamps, chairs, tables, rugs, etc. all to scale and artistically color-blended to match the surroundings. The use of concrete



Left to right: Truck and trailer hauling 48-in. dia. reinforced concrete pressure pipe from Fontana plant; view of new pipe plant, showing 54-in. dia. pipe, curing boxes and three overhead cranes; some of the 48-in. dia. pipe 20 ft. in length, after curing boxes have been removed



Another view of concrete masonry plant at Stockton. It features a large yard area, is fenced and presents a striking picture to highway traffic

and precast concrete is emphasized and each roof is hinged so that it can be raised and held in open position for exhibition purposes.

These models are portable and have been put on display at the leading department stores in San Francisco, Oakland, San Jose and other important cities, in home shows and at State and County fairs. They are also on exhibit in the display rooms at the Napa and Stockton plants. They have been effective and were built because the company's merchandising is keyed to the idea that the prospective customer is interested in the finished job.

Aggressive merchandising did the trick in building acceptance for con-

crete masonry but the most important single contributing factor has been the company's insistence upon top quality so that every job of concrete masonry would be a testimonial that it is the best building material.

In line with this policy, the company set out on its research program to develop a new aggregate. It was felt that its pumiceous aggregate did not produce a unit sufficiently resistant to the penetration of water. While research was underway, a method of water-proofing masonry units was developed, which consisted of thoroughly drying cured units and dipping them in a water-proofing solution. This was temporary but proved effective.

Solution to the problem came in the form of an artificial lightweight aggregate expanded from shale in rotary kilns. The aggregate has the peculiar property of having each particle rounded, with a vesicular interior sealed with an impervious coating. This aggregate was first manufactured at the Rocklite plant, and the new plant at Napa Junction which we describe in a separate article produces an aggregate of similar properties.

To point up again the emphasis on quality, there is a small percentage of free lime (CaO) in the aggregate calcined at Napa Junction. Rather than risk possible complaint, the calcined material is all slaked for 24 hr. under water to hydrate the lime for later removal.

While this development work was in progress, research was underway to develop new precast concrete products that would require increased use of the lightweight aggregate.

The company was not content to limit its operations to the making of concrete units that would be confined to laying them up singly in a wall and set out to develop structural uses for concrete masonry. It was desired to minimize the costs of jobsite trades' labor, to the advantage of the customer, and at the same time to increase volume and make a higher percentage of the cost of a building available to the company.

Out of this came Strecretre and, more recently, the prefabricated, prestressed concrete house. Separate articles in this issue cover these developments and also the new reinforced concrete pressure pipe plant at Fontana.

Concrete Masonry Plants

Basalt has always followed the practice, in its modern plants, of steam curing and not delivering any units that have not been yard-cured a minimum of 28 days. A large stock of units of all types, numbering about 160, is kept at all plants in order to provide adequate service to all classes of users including the farm market.

The plants themselves play an important part in the sales program. Each plant is a thing of beauty, is located in a center of population, and is on a main highway. In each case, the plant is designed for top operating efficiency and is on a spacious paved plot of ground for convenience in yarding and truck-loading, and to permit adequate landscaping. Until these plants are seen, it is hard to visualize that a plant for the production of concrete masonry units could actually have such attractiveness. They give the impression that they must be soundly managed, efficiently operated and produce a top quality product.

The Stockton plant was built in 1947 and is the newest one. It is lo-



Interior of Stockton black plant showing two large capacity machines. Structural steelwork is of unique design fabricated in Basalt's steel products plant

BASALT ROCK

cated approximately 65 miles from Napa and is in the San Joaquin Valley. Sacramento, Modesto, Merced, Lodi, the rich mining areas east of Stockton and a great number of small towns and villages are within easy trucking distance. The plant is at the junction of two important U.S. highways. It has an ultra-modern office and display room. Upon re-inspection six years after it was built, the entire plant proved to be as neat and well-kept as it appeared right after building. It is on a 12½-acre plot paved with asphaltic concrete and is enclosed with a 6-ft. steel-link fence. It has change rooms for the men.

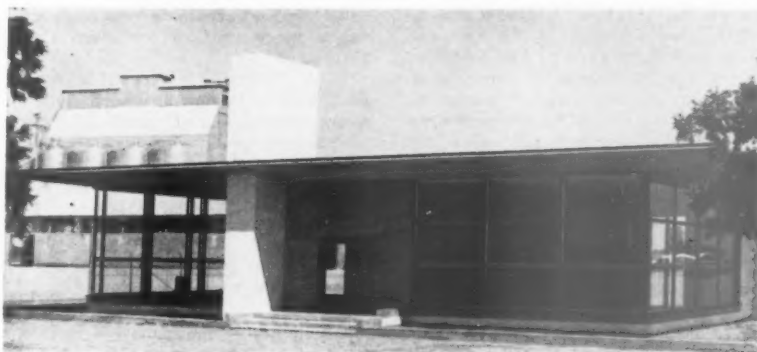
The main plant is an impressive structure 85 ft. in height and measuring 100 x 162 ft. in area. It has four steel bins with weigh batchers below. Each bin has four compartments, and total storage is for 2400 cu. yd. of aggregate. There is a 400-bbl. steel silo for cement for each batcher. Batching equipment comprises weigh hoppers with four sets of Toledo scales and there are separate 50-cu. ft. Besser mixers serving three Besser Vibrapac machines.

The layout provided for delivery of lightweight aggregates from Napa over the Southern Pacific railroad. The cars discharge into a track hopper serving a long inclined belt conveyor delivering to a shuttle belt conveyor over the bins. Until this year, pumice had been used but the new Basalite artificial lightweight aggregate is now being shipped from Napa Junction.

Until the new lightweight aggregate became available, this plant, like the older operation at Napa, had been equipped for the waterproofing of pumice concrete units after high temperature steam curing and drying.

Construction of the plant has novel features built around the use of steel pipe for vertical and bracing supports. It is of concrete and steel construction except for planking on the batching floor. There are 11 steam-curing kilns measuring 7 ft. 6 in. by 68 ft. 8 in., which are open at both ends. They were kept narrow to minimize door leakage and of a width to conform with rack dimensions for maximum space use. An oil-fired 250-hp. marine boiler supplies the steam for high temperature steam curing. The kilns are located between the main plant structure and a 53 x 162-ft. covered storage area, with overhead cranes, which was provided for the fabrication of large dimension structural concrete units in the future. The plant was designed so that additional block machines can be added and so that ready-mixed concrete could be dry-batched to truck mixers.

The office is of modernistic design and is the sales headquarters for the Stockton-San Joaquin Valley area. Several of the small scale model homes are on exhibit in the display room.



Stockton plant has modernistic offices and display room for showing the various concrete products produced

The older plant at Napa is of similar arrangement with three Besser Vibrapac machines, high temperature steam-curing kilns and belt conveyor for delivery of aggregates into overhead bins. This is the plant in which Mr. Streblow installed the German machine and where concrete shingles were at one time manufactured. It and the Stockton plant are described in previously published articles to which we make reference at the conclusion of this article.

Rocklite Plant

The concrete masonry plant of affiliated Rocklite Products at Ventura, Calif., is similar to those at Napa and Stockton. It has a 9-acre fully paved yard and stocks well over a hundred Rocklite masonry shapes. Its capacity is approximately the same as the other two plants, having three Besser Vibrapacs also. Cement is received in bulk cement trucks which is common practice in California and concrete block are delivered over a

radius of 250 miles in flat-rack, semi-trailer trucks hauling 1450-1500 units per load.

There are six 80-ft. long curing kilns and units are cured at 170 deg. F. under a 24-hr. cycle at 100 percent relative humidity, followed by yard curing for a minimum of 30 days. Steam is supplied the kilns by an oil-fired, fully automatic Cleaver-Brooks steam generating system. Kilns doors are provided with inflatable rubber hose inserts in the jambs for a perfect steam-tight seal which is the type seal used also at the other plants. A large fleet of Clark lift trucks handles transportation of concrete units throughout the plant.

The plant has three 50-cu. ft. Besser mixers each serving a block machine and the weigh batchers are equipped with Toledo scales. Its main structure is 80-ft. high and is located across the road from the Rocklite lightweight aggregates plant, also owned by the company.

Rocklite Products has a modern of-



Basalite lightweight aggregate is produced in four rotary kilns at new Napa Junction plant. This view is from feed end of kilns

fice at the plant in Ventura and a well-organized sales staff. Consolidated Rock Products Co., Los Angeles, one of the largest sand and gravel and ready-mixed concrete producers in the United States, is the exclusive sales outlet throughout the sprawling Los Angeles area. Consolidated has aggregate plants, asphalt plants, ready-mixed concrete plants and retail

sales yards at strategic locations serving a large part of Southern California.

E. A. Peterson is general manager of Rocklite Products, for both masonry products and, artificial lightweight aggregates. Rocklite's officers and directors are officers and some of the members of the operating staff of Basalt Rock Co.

Lightweight Aggregates

ROCKLITE ARTIFICIAL LIGHTWEIGHT AGGREGATE was developed some years ago at the present location of the plant, and the availability of this excellent source of lightweight aggregate dictated location of the block plant. The original aggregate plant with its three 8- x 125-ft. rotary kilns was acquired several years ago and, early in 1953, a fourth rotary kiln was added and production improved. The kilns are fired by natural gas or oil.

Location of the plant is near a deposit of shale that is highly suitable for calcination into lightweight aggregate. Caterpillar rippers and other types of tractors with dozers, and Carryalls, deliver the shale to the processing plant. The shale is a light blue to brown-colored material and is somewhat lumpy. It is crushed by hammermill and sized over vibrating screens. Each of four sizes is fed to a separate rotary kiln and the calcined material from each kiln is put through a rotary cooler.

After re-screening to size, Rocklite is stockpiled ready for use. Delivery to the block plant is by trucks and the haul is only about 100 ft. The plant is currently undergoing modernization while in production, to im-

prove handling methods and methods of dust control.

Calcining methods as described in the separate article in this issue covering the new lightweight aggregate plant at Napa Junction apply to the production of Rocklite, the burning methods in use at both plants having been perfected at Ventura. The shale at Ventura, unlike Napa Junction, does not contain calcium carbonate and therefore has no problem insofar as free lime removal is concerned.

Ventura has a much drier climate than the Napa area and does not require the building up of large reserves of graded raw material which is practice at the Napa Junction plant. Bin capacity available is sufficient for the few wet days encountered. The finished material is buff-colored and is almost identical in physical appearance as produced at both plants.

Rocklite expanded shale aggregate is not confined to use in the company's own concrete products operation. It is being sold to other concrete masonry producers in Southern California and its uses for monolithic structures are rapidly being extended.

Rocklite has come into considerable prominence as a lightweight aggregate for monolithic concrete because

of its favorable use in construction of the new Statler Hotel and office center in Los Angeles. This is a \$22 million structure and the largest single building to be constructed in the West since World War II.

Approximately 40,000 cu. yd. of Rocklite concrete was used on this job which is the largest single use of Rocklite aggregate to date. Its use was specified to reduce the dead load and is said to have resulted in a 15 percent savings in the cost and weight of steel frame members and one-third in the weight of concrete. Dead weight of the structure was reduced by 37,000 tons with a saving of some \$2 million in steel.

Lightweight concrete was used from foundation to roof. The structural steel frame was enclosed in concrete, and the floors, foundations and walls were built of lightweight concrete. Concrete weighing 100 lb. per cu. ft. was used for the outer shell, inner floors, beams and structural fireproofing. Exterior concrete was scored to simulate building block appearance, using wood strips nailed to the concrete forms to obtain the effect.

Dry weight of Rocklite aggregate ranges from 63 lb. per cu. ft. for the sand sizes, down to 36 lb. per cu. ft. for coarser sizes. Concrete weighing 80-90 lb. per cu. ft. will have compressive strengths in excess of 2500 p.s.i. when using standard w/c ratios.

On the Statler project, natural sand was inter-blended with Rocklite where 100-lb. concrete was desired. Concrete was designed for slabs and walls, to yield a compressive strength of 2500 p.s.i. at 28 days, using a 6-sack mix and 4 percent air entrainment. A typical mix for a yield of one cu. yd. of such concrete was as follows:

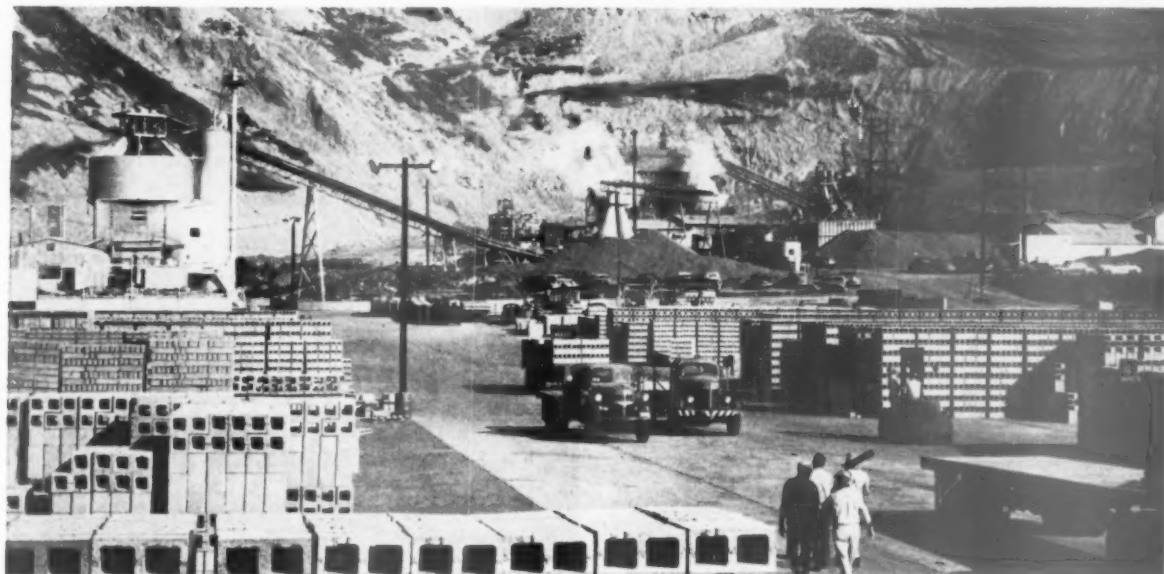
Cement6 sacks
Natural Sand700 lb.
Rocklite Sand440 lb.
Rocklite (3/4 in.)440 lb.
Rocklite (1 in.)350 lb.
Water310 lb.

Slump of the concrete used for the floor slabs was 3 to 4 in., and 4 to 5 in. for the walls. Mixing time was two minutes and the aggregates were not pre-wet. Improved workability was obtained for some of the more intricate architectural designs by increasing the Rocklite sand fractions and reducing the proportions of the coarser aggregates. The job required a night and day haul of concrete in truck mixers, the use of motorized buggies, and internal vibrators were used for placement.

Rocklite and the new Basalite aggregate produced in the Napa Junction plant have unique properties that are produced through control of calcining, so that the crushed and graded raw shale is brought to the critical point of incipient fusion of the particle surfaces. Each particle has a tough outer skin surrounding a ves-



Interior of Basalite plant at Napa, showing large capacity block machines. In addition to concrete masonry units, a variety of specials is manufactured in this plant



To the left is the Rocklite Products block plant, and to the right, background, is the rotary kiln plant for the manufacture of lightweight aggregate. The hill in the background is the source of raw material

cular interior and is very hard and smooth.

The dry aggregate absorbs considerable water from the concrete mix and therefore has the property of lowering the water-cement ratio with resultant increase in strength. Practice is not to pre-wet the aggregate in order to gain this benefit.

Concrete made with this aggregate is low in absorption and has exceptionally low curing shrinkage and volume change due to wetting or from thermal changes. Concrete has been designed that has strengths up to 8000 p.s.i. As an insulator, it has a "K" factor of 2.0, and when used with as much as 29 percent inter-blended natural sand the K factor is about 3.4. This compares with 8 to 12 for heavy aggregate concrete.

Masonry units of these aggregates have a K factor in the 2.5 range and a "U" rating of 0.37. This aggregate is highly refractory and has been used for such applications under temperatures as high as 2000 deg. F. Rocklite has been approved for Class A concrete by the Los Angeles Building Department, the FHA and the National Housing Agency. Other uses have been for roofing gravel, acoustical plaster and for guniting. Outside the southern California area, another "name" job was the use of 17,000 cu. yd. of Rocklite for concrete in building the Capitol annex at Sacramento, Calif.

Structures built of Rocklite concrete were undamaged by the severe earthquake centered at Tehachapi in July, 1952, which demolished many structures of other types. This was quite a tribute to Rocklite concrete when it is realized that the Tehachapi earthquake was of such intensity that

it would have caused untold damage had it occurred in a metropolitan area.

The four basic sizes of Rocklite with weights per cu. ft. are as follows:

Passing	Retained	Weight
1 in.	$\frac{3}{8}$ in.	38 lb.
$\frac{3}{8}$ in.	$\frac{1}{2}$ in.	45 lb.
$\frac{1}{2}$ in.	8 mesh	55 lb.
8 mesh	0	63 lb.

Napa Junction Plant

With completion of the new lightweight aggregate plant at Napa Junction, in 1953, the company has discontinued the use of pumiceous aggregate entirely and is widely promoting the advantages of the "new Basalite aggregate" throughout its entire marketing area.

The plant is located on the Vallejo-Napa highway which permits trucks to carry payloads of both concrete units from Napa and aggregates from Napa Junction. It adjoins the Southern Pacific railroad which is convenient for rail shipment to the Stockton

plant and is on property occupied by the old Standard Portland Cement Co. many years ago. The old water-filled quarry is a plentiful source of supply of water.

The Napa Junction plant has four 8- x 125-ft. rotary kilns with a daily capacity of 800-1000 cu. yd. of "Basalite" expanded shale aggregate. Design has provided for later installation up to four additional kilns.

Shale is trucked to the plant, crushed through hammermills, screened into four sizes and stored under cover. The separated sizes are fed into separate kilns and calcined at 1900 deg. F. An innovation is the slaking of calcined shale for the removal of free lime. Basalite aggregate is high in silica and alumina with about 61 percent SiO_2 and 24 percent Al_2O_3 .

This plant was built to give opportunity for expansion into new fields and timing of its construction con-



Office of Rocklite Products, Ventura, Calif., where lightweight aggregates and concrete masonry units are produced



Left: Many special precast products are manufactured in Napa Basalite plant, as shown above



Right: Precast concrete slabs of this type are typical of specials manufactured at Napa

formed with completion of the new precast house plant alongside which will take considerable of the output. Aggregate is being stockpiled for use in ready-mixed concrete and for other outlets, and it is anticipated that this new source of aggregates will enable many leading ready-mixed concrete plants to supply lightweight aggregate

concrete throughout central and northern California. This field has enormous possibilities in furthering the use of concrete and is one that has been largely undeveloped as yet throughout the United States. Details of production in this plant are published in a separate article in this issue.

buildings with walls up to 22 ft. 8 in. and spans to 56 ft. A commercial type of building with parapet walls was developed and an industrial type with overhanging eaves. In this type of construction the contractor supplies the welders, riggers and steel riggers and the company supplies erection drawings and instructions. An advantage is that a price can be quoted for a building on the basis of square footage of floor area. The large units are delivered to the job on flat-bed tracks, loaded in the proper positioning sequence and installed directly in place by crane. Panels produced at the plant are welded into place on a specially-designed steel framework.

Today, Stresterete products include wall panels, columns, beams, integral steel frame buildings, silos, water tanks and many other types, in addition to floor and roof slabs. Applications are in schools, churches, warehouses, industrial and store buildings, farm structures and all manner of construction.

Stresterete is adaptable to all prevailing methods of construction and has the advantage of rapid installation with no form work. The hollow core design provides insulation, wiring and piping space, ducts for warm air radiant heating, and is available at great saving in weight compared to solid concrete. Other advantages are that field errors are eliminated as well as wastage of labor and materials at the jobsite, and weather delays are minimized.

Slabs and panels are being made to fit any shape requirements such as 24-in. long by 4-in. thick radius block for circular bin construction. Pricewise, Stresterete construction has proven to be cheaper than any other

Prestressed Concrete

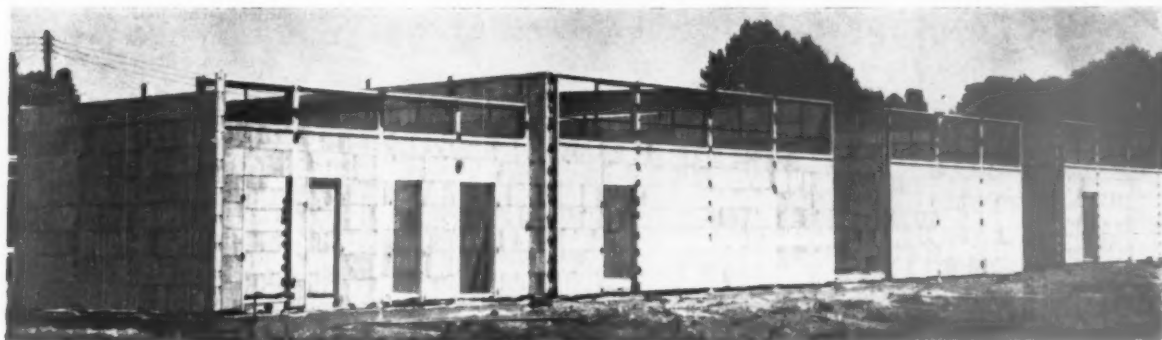
BACK IN 1944, BASALT ROCK Co. began its research that led to the development of Stresterete. It was felt that precast concrete masonry units should not be limited to competition with ordinary building materials but should be given the versatility and flexibility to become more of a primary building material. It was desired to enable the company to realize more of the cost of a building through fabrication in its own plant under controlled conditions and so that job-site labor requirements might be minimized and be more effectively used to the advantage of builders.

The company conceived the idea of prestressing an assembly of machine-made concrete units into slabs which would behave under load like monolithic structural concrete. A patent was sought, which disclosed an earlier one to have been granted. However, the idea had not been fully developed, and exclusive right to use of the patent was obtained, and the company proceeded rapidly to develop the idea of Stresterete and set up production facilities at its Napa Basalite plant, which started up in 1949.

Originally, Stresterete was limited to the fabrication of floor and roof slabs, consisting of standard machine-

made concrete masonry units which were assembled into panels and prestressing applied. After curing, the units had their contacting surfaces ground to close fitting tolerances and, while being assembled into slabs, steel rods are pre-tensioned to the stress required in the design loading so that there would be minimum deflection when under full load. Threaded rods are placed in side splines and laced through steel washers positioned at the end of each assembly, tension being applied by hydraulic jack or torque wrench. These slabs are manufactured in multiple widths of 16 in. and in depths of 3, 4, 6, 8, 10, 12 and 16 in.

New adaptations of the Stresterete principle have been perfected since its development which have evolved into the Stresterete system of construction. Tongue and groove siding was developed in the 1950-1951 period, originally for non-load bearing curtain walls to be used for steel frame building partitions and exteriors. Size of these panels was limited only by the availability of transportation and hoisting facilities. Then they were adapted for load-bearing walls in integral steel frame buildings which led to selling standardized package



Construction view of Holy Spirit parochial school, Sacramento, Calif., showing 6-in. Strestcrete walls and roofs

non-combustible building material. In the California market, a house built of Strestcrete with exposed and painted walls is said to compare competitively in price with stucco and frame structures.

Strestcrete has been nationally advertised and reputable concrete products producers have been licensed by the Strestcrete Division in various sections of the United States and in Canada to manufacture and sell Strestcrete. The Strestcrete Division is in production at Napa. It operates like an independent set-up but is integrated with the engineering, production, sales and field erection departments constituting other divisions of the company. The company manufactures practically every component of a Strestcrete structure through its various divisions. It has also manufactured much of the specialized machinery required to manufacture the product.

Precast Houses

One of the most enterprising programs ever inaugurated by any com-

pany in the field of prefabricated concrete homes was undertaken in 1953 with completion of the plant for the manufacture of precast, reinforced, prestressed concrete homes. This step, to increase the potential for lightweight concrete, was undertaken so that the company would be in position to close sales by offering packaged homes that would not require reliance on realtors, architects, general and masonry contractors. At present ten models of homes are available that will give a choice to prospective purchasers interested in a Basalt Plan Home, from which they can select, like buying an automobile.

The precast plant was erected adjoining the Basalite block plant and is an impressive structure more than 900 ft. in length, for pre-casting concrete sections and curing them. There are 30 casting tables capable of making concrete sections up to 12 x 40 ft. in size into which plumbing stacks, wiring conduit, steel sash, door frames, electric outlets and switch boxes, etc., are incorporated before the

concrete is poured and placed by vibration. Steel reinforcing is stressed to impart its compression to the concrete in order to eliminate cracking. Precast sections like these, which are designed so that they will never crack, are something completely new to concrete construction.

The plant can produce two or three three-bedroom homes per day depending on roof type, and has storage space for panels and sections to build 68 three-bedroom homes and 80 two-bedroom homes. Sections are delivered on truck-trailer rigs, and cranes position the slabs on the job where the assembly is welded.

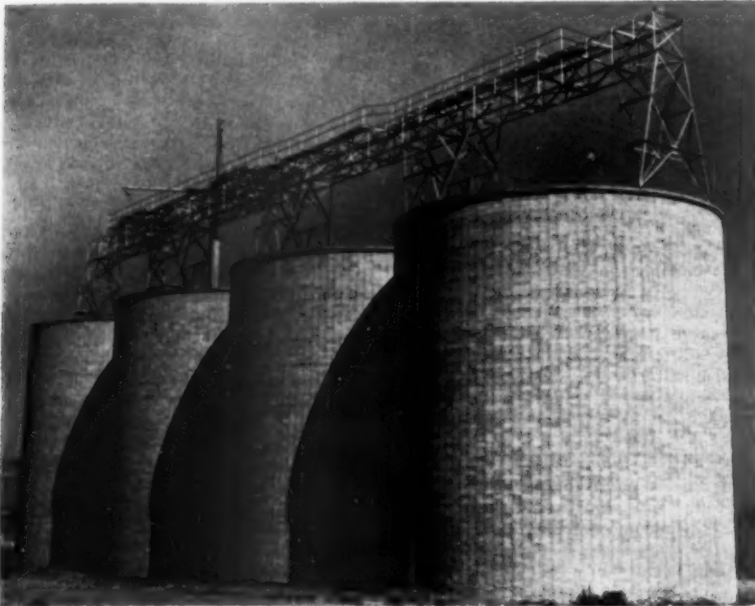
Price-wise, these houses come in the medium price range but, when the type and quality of construction are considered, are in the low cost bracket. The structural shell may be erected for a price of \$3.30 to \$4.20 per sq. ft. and the complete structure for \$10 per sq. ft. Basalt sets the foundations and erects the main elements of the structure including any roof pattern, and the contractor or



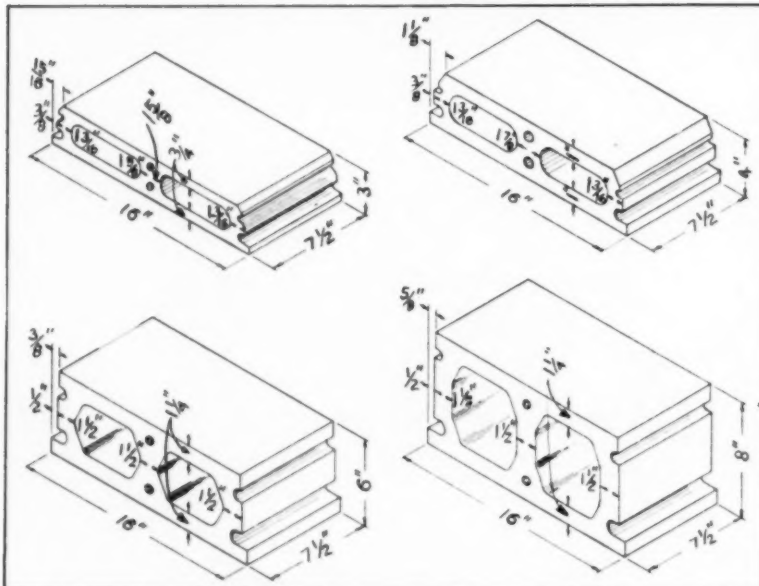
Aerial view of Basalite plant at Napa, showing the large paved area. The company insists on carrying a large inventory of properly cured units



Laboratory of Basalt Rock Co., Napa, is built of Strestcrete combined with mortared unit masonry construction



At the Basalt lightweight aggregate plant, Napa Junction, the 50 ft. dia. by 65 ft. high aggregate silos are constructed of 8-in. thick internally reinforced Strestcrete studwall units



Standard Strestcrete roof and floor slab units manufactured at Napa. Similar units are available in 10 and 12-in. depths

builder finishes the job.

This is still a very new venture but several demonstrations have been held for builders and others; and the walls for several 3-room homes have already been completely assembled in less than 8 hr. At present, homes are being sold direct to individuals and contractors but it is planned to start one or more subdivisions.

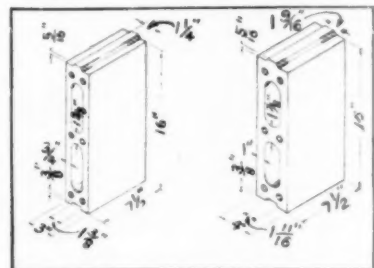
The precast plant was erected entirely for the production of homes but other specialties will undoubtedly be manufactured in the future. Sales are handled through salesmen and the company's dealers and distributors. E. F. Henry handles the field erection. The entire operation is described in a separate illustrated article in this issue.

Research Laboratory

One of the important developments in 1952 was completion of a research laboratory at Napa to insure accurate control of the quality of products manufactured in existing as well as contemplated new facilities, and as an aid to the promotion, investigation and development of new uses for lightweight concrete.

This laboratory is for the improvement of the production of aggregates as well as products of concrete and its activities are closely correlated to plant conditions and problems. To simulate conditions in the precast plant, the laboratory has a vibrating table with controllable variable frequency to compress concrete into cylinders for comparable testing. It is equipped to facilitate the solution of problems that may arise later in the field, to speed up the correction of operations affecting plant economics and for making up special concrete mixes well in advance of use. Research problems related to the company's ready-mixed concrete operations and in the field of concrete generally are also handled in this laboratory.

The laboratory measures 32 x 80 ft. and is built of the company's own products. It is a Strestcrete integral steel frame building with partitions of concrete masonry units. It has a fog room and drying room, with the fog room equipped with controlled temperature and relative humidity for



Details of 3-in. and 4-in. tongue and groove units for wall construction

moist curing and to enable the study of the effect of moisture on volume change. Function of the dry room is to permit volume change readings.

Laboratory Equipment of Latest Type

Among principal equipment are a 300,000-lb. compression testing machine, apparatus to determine modulus of rupture and modulus of elasticity, strain gauges for volume change measurements, screens for testing the gradation of aggregate, the Kelly ball for consistency measurements and other equipment for study of absorption and moisture content.

The laboratory is used in the training of sales personnel and is proving of value in gaining the confidence of architects, engineers and the company's customers.



Erecting a typical precast residential wall section of prestressed, lightweight aggregate panels

QUARRY OPERATIONS

THE MCNEAR POINT QUARRY was the second quarry operation started by Basalt Rock Co. The plant was built at a time when the company had large contracts to supply core, face and cap rock for jetty work in connection with the Alameda Naval Base. It required a year (1945-1946) to fill a single contract involving about one million tons of stone for that Naval base. The jetties were to minimize silting at the aircraft carrier docks and for protection against storms.

At the time of this contract, the company had already had a great deal of experience in producing and placing jetty stone and had developed steel self-unloading barges for the purpose. Specialization in the production of jetty stone came about originally because the company's quarry at Napa was particularly suited to the production of large stone sizes. Stone of that character is scarce throughout California.

Until the quarry was started at

McNear Point, jetty stone and rip-rap were produced only at Napa where suitable large chunks were accumulated in stockpiles. Large cap rock were those pieces which would not pass the opening of a 48- x 60-in. jaw crusher.

Core rock for the Alameda contract and others is in the size range of 27 cu. in. to 8 cu. ft. which amounts to a quarry-run stone with the fines removed. It constitutes the main fill in jetty work of this type. Face rock ranges from $\frac{3}{4}$ cu. ft. (100 lb.) to 40 cu. ft. in size, and the cap rock is selected by shape for interlocking like a coping and is in the size range of 3-8 tons.

The plant at McNear Point was designed to produce core rock principally at a rate of 750 t.p.h., it being located close to the point of use and in a formation suitable to produce core rock sizes. Larger sizes are set aside for face and cap rock but the bulk of big stone for all such jobs is produced at the Napa quarry. The

rock at McNear Point is classed as Franciscan sandstone but it has been metamorphosed into a quartzite. It is very durable, tough and hard, and has high resistance to the action of sea water. However, it does break down under blasting into relatively small sizes.

As originally built, the plant was designed to screen out the fines in the production of core rock. The fines (minus 3 to 4 in.) were stockpiled near the plant, which incidentally was designed originally with a view to adding crushing equipment and screens for the production of 300-325 t.p.h. of commercial stone at a later date. This was done two years ago.

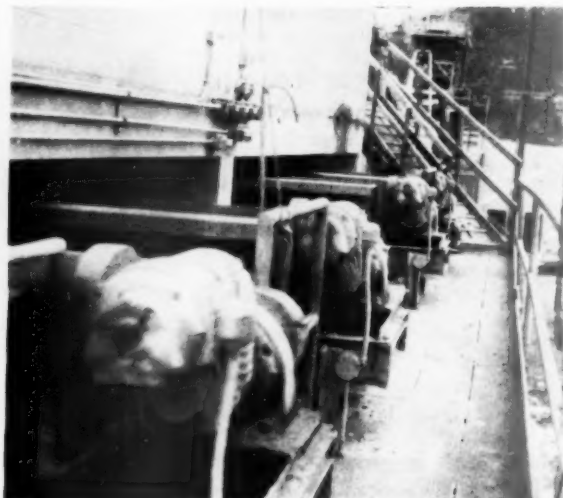
The original plant has a 48- x 60-in. Traylor Bulldog primary crusher fed by a Traylor heavy-duty reciprocating feeder-grizzly. Setting of the crusher ranges from 7 to 12 in., requiring the use of a special toggle for the larger opening. A 48-in. Goodrich cord belt delivers the stone from the primary crusher, over a grizzly which is followed by a 4- x 8-ft. double-deck Seco vibrating screen. The fines are now delivered by belt conveyor into a truck hopper alongside the main screening plant or they may be stockpiled.

Coarse rock drops into bins from which a belt conveyor loads it into barges at the dock. Large face and cap rock are set aside in the quarry or at the feeder to the primary crusher and are hauled by trucks over ramps for direct dumping into barges. The same practice is followed at the Napa quarry, from which the stone must be barged on the Napa River.

A considerable volume of jetty stone is still being used at the Alameda Naval Base and, in the San Francisco Bay area, for both military and non-military use. A project of considerable size recently started is the San Rafael-Richmond bridge which will be some five miles in length. Basalt has



Interior view of laboratory showing dual unit compression machine, electric drying oven and cylinder capping equipment



Left: Variable speed motors are used on screw conveyor for portland cement added to the cement-treated base material at McNear Point plant
Right: Variable speed motors also are used on apron feeders under the finish bins. Feeders can blend to a common belt. This belt is reversible so trucks can load from either end

contracts for this project that also include sand from its Healdsburg plant and various sizes of crushed stone.

The new washing and screening plant to process the fines from the older plant is located one-quarter mile from the core rock plant. Just beyond the new plant, a second quarry has been opened up, which is a 2-bench operation and a source of stone for both plants.

A fleet of four Euclid bottom-dump trucks are loaded from stockpiled material by an 80-D diesel-powered Northwest clamshell for the haul to the new screening plant. The trucks also haul the fines from the truck bins at the core rock plant.

A 29-T Bucyrus-Erie electric churn drill is used to drill 9-in. diameter drill holes and a typical shot consists

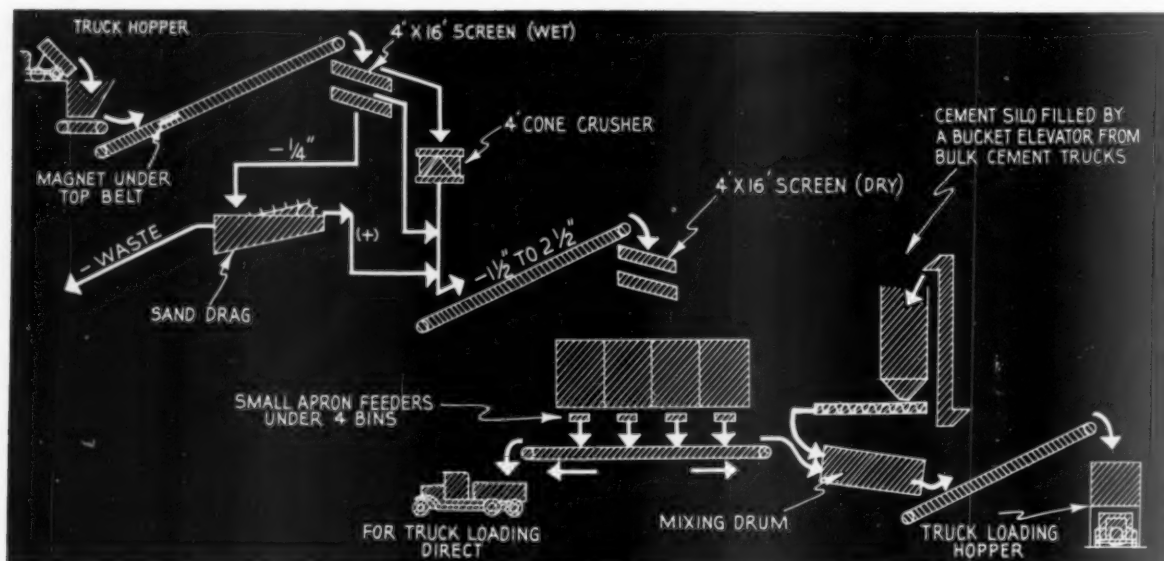


Magnet under primary belt stops the belt if there is any metal on belt. Belt joints are vulcanized as the lacing would stop the belt

of 10-14 holes shot simultaneously using Primacord and electric blasting caps. Secondary drilling is by jack-

hammers. Excavation is by a 120-B Bucyrus-Erie electric shovel with 4½-cu. yd. bucket, loading into 13-cu. yd. Euclid end-dump trucks, of which there are six.

When the stone is of small size it can be delivered to the newer screening plant but normal practice is to deliver to the original plant. The fines are then returned by truck and are dumped into a hopper at the newer plant. A 36-in. Link-Belt apron feeder regulates the flow to a belt conveyor delivering to a 4- x 16-ft., double-deck Symons washing screen. The belt conveyor has an iron detector that will stop it, should tramp iron get onto the belt. After such metal is removed, the belt conveyor is started manually by a conveniently located push-button. Since metal lacings would cause the



Flowsheet of operations at the screening and washing plant at McNear Point



View of McNear Point crushed stone plant, showing cement bin for the preparation of cement-treated base

belt to stop, vulcanized joint splices are necessary.

Oversize from the vibrating screen is crushed in a 4-ft. Symons cone crusher which operates in open circuit. Fines through the lower deck discharge into a sand drag and the overflow is wasted. All products from the screen, and the washed sand, combine on a second belt conveyor which discharges over a second 4- x 16-ft. Symons vibrating screen mounted over four concrete bins. Under each bin and operating at right angles to the long axis of the bins are four Link-Belt apron feeders each driven by a U.S. Vari-speed motor. The apron feeders deliver to a flat-running belt alongside the bins. The installation permits blending on the belt. The belt is reversible and, when running in one direction, can discharge directly into trucks. When operating in the other direction, the material discharges into a rotary drum-type slurry mixer. If a cement-treated base material is desired, portland cement can be added to the mixer via a small screw conveyor that is also driven by a U.S. Vari-speed motor. Slurry is a blend of minus 1½-in. (or minus 2½-in.) material to which a small amount of water has been added. Cement-treated base material is a somewhat similar material except that it has added to it 5 to 7 percent portland cement (with or without water) and is delivered to the job or to barges in conventional trucks. As much as 2000 tons per day of slurry has been delivered in barges to the Alameda Naval Base job.

Future plans for the plant provide for a primary crusher arrangement at the newer plant so that quarried rock can be completely processed without rehandling.

The crushing and screening plant

at Napa, as modernized, has a capacity of 250 t.p.h. of stone products minus 1½ in. It is equipped to screen six basic sizes: 0-¼ in.; ¼-½ in.; ½-¾ in.; ¾-1 in.; 1-1½ in.; and 1½-2½ in., and is designed with variable-speed belt conveyors beneath the bins for blending to meet state and federal specifications as trucks are loaded.

Principal equipment comprises a Traylor apron feeder to a 48- x 60-in. Traylor primary jaw crusher; 4-ft. and 3-ft. Traylor secondary gyratory crushers; a 4- x 10-ft. Niagara Mogul double-deck vibrating screen for scalping; two 4- x 16-ft. double-deck and one 5- x 14-ft. double-deck Seco vibrating screens for sizing.

Sand and Gravel Operations

SAND AND GRAVEL OPERATIONS of Basalt Rock Co. are located on the Russian River at Healdsburg which is some 75 miles north of San Francisco. This is one of the company's oldest plants but it has been modernized section by section over the years and enlarged progressively from its original capacity of 150 t.p.h. Today, it is an all-steel and concrete structure of 500 t.p.h. capacity.

Sand and gravel are excavated from the banks of the Russian River and, under water, by a Bucyrus-Erie walking dragline with a 4-cu. yd. Page

bucket and by a 2½-cu. yd. American dragline. The larger machine has an 80-ft. boom and excavates to depths up to 40 ft. below the water. Because the river is in flood stage for several months during a year, practice is to stockpile 500,000 to 1,000,000 tons of pit-run material above the high water line which can later be reclaimed by draglines in maintaining a uniform production schedule.

An interesting feature of the plant is the production of four separated sizes of sand which are blended on a belt conveyor in a reclaiming tun-



A 4½-cu. yd. electric shovel loading a 13-cu. yd. haulage unit at McNear Point quarry

Advertising-Sales Promotion

nel to meet gradation specifications. Two of the sand sizes are separated over vibrating screens, a third is the product of a rake-type dewatering machine and the fourth (minus 16-mesh) is produced from the overflow from the rake, which is put through a second rake-type machine. This fine fraction has a high percentage of minus 50-mesh and minus 100-mesh particles. The four sizes are stored on the ground over the reclaiming tunnel. Specification sand is produced by blending minus ¼ in., minus ½ in., ¾ in. to 1 in. and minus 16-mesh.

Seven sizes of uncrushed, washed gravel are produced and five sizes of 100 percent crushed gravel which is also washed. Screening equipment comprises a Seco scalper and Niagara-type vibrating screens. The final vibrating screens are mounted in steel galleries and sized gravel is stockpiled below. Reclaiming is done by belt conveyor.

Crushing equipment includes a Traylor gyratory and a set of crushing rolls. Uncrushed gravel sizes are in the ½- to 2½-in. size range, and crushed gravel is produced from 2½- to 10-in. gravel. An estimated 10 percent of the gravel is crushed. All coarse aggregate is rinsed prior to loading in trucks and railroad cars for shipment. A wide area is served from the Healdsburg plant stretching from 75 miles south to 200 miles north. A large percentage of the production is delivered in company-owned trucks. The company has fairly well standardized on Dodge trucks for over-the-road haulage and more than 100 are used in the various operations. A ready-mixed concrete plant and a hot-mix plant are operated.

As this is written, experimental work is underway to further improve the sand production which will lead to the use of liquid cyclones for the purpose.

BASALT'S AGGREGATES and products of precast concrete are sold throughout a large part of California, roughly from Kern county in the south to Oregon in the north, and from Nevada on the east to the Pa-

in marketing the recently introduced precast concrete houses.

The outside sales force has been in process of expansion in recent years and the newer members are largely young college men. Most of them are graduates in business administration. Each man is given complete indoctrination on all new products as they are added, and part of the training program is in the plants and in the laboratory. Sales meetings are held once a month.

Sacramento is the center of the trade area for concrete products and the company has a permanent exhibit at Sacramento's outdoor State Fair. Its space is 150 ft. long and practice is to rebuild and redecorate the exhibit each year. Some of the exhibits are of a spectacular nature to arouse attention. For example, one display featured an RD-8 Caterpillar tractor supported on a Stresterete slab.

The company believes that demonstrations of complete houses and other structures are among the best merchandising tools and makes effective use of them at every opportunity. Workmanship is stressed in these demonstrations and houses are completely furnished for sale. Effective use is made of the small-scale model houses already mentioned and this idea will likely be expanded upon in the merchandising of the new precast house. Uses of concrete are demonstrated at the various county fairs. Large contracts like the reinforced concrete pressure pipe job now being filled, are generally closed personally by Mr. Streblow.

Advertising is a large part of Basalt's selling program and there isn't anything hit or miss about it. Yearly expenditure for advertising is in the \$50,000 range, largely for concrete products, and the program is carefully planned ahead for the coming year. Pacific Advertising Staff, an Oakland advertising agency, prepares the advertisements from ideas originating with Basalt.

Among magazine media used are the Western section of *Architectural Record* which reaches architects and engineers; the *Daily Pacific Builder* to reach contractors in the San Francisco Bay area; *Sunset Magazine* which covers the residential level including owners and builders throughout California, Washington and Oregon; the San Francisco edition of the *Wall Street Journal*; the *California Book of Homes*; the *Pacific Builder*; and several magazines reaching the farmer. The latter include the *California Farmer*, *Western Dairy Journal*, *Western Livestock Journal* and *Pacific Poultryman*. The national edition of *Architectural Record* is used for Stresterete advertising.

Good Mixers

NEW BASALITE "rounded particle" surface sealed expanded shale aggregate and Portland cement really do mix well. The result is the finest lightweight concrete available!

For NEW BASALITE aggregate is chemically inert and adheres to the Portland cement concrete matrix. It is produced by crushing shale to produce a fine aggregate of particles which, after the use of special heat-treated aggregate, is subjected to a high-pressure steam treatment. Consider these advantages for NEW BASALITE aggregate concrete offers over conventional heavy concrete:

- Lighter in weight - 15 to 100 lb. per cubic foot concrete with conventional strength for proper placement.
- High strength - 3,000 to 5,000 psi and is best with normal weight concrete.
- Free to five times better resistance value.
- Excellent resistance to frost, chemical attack.
- 100% FREE AND CLEAR! No rebar, steel reinforcement, no "hot spots" or "cold spots".

Not only will your own investigation verify these advantages - it will indicate many, many more. We believe that you, too, will conclude that NEW BASALITE aggregate is essential for specifications requiring monolithic concrete. Write or contact your BASALITE representative today!

Specify New BASALITE

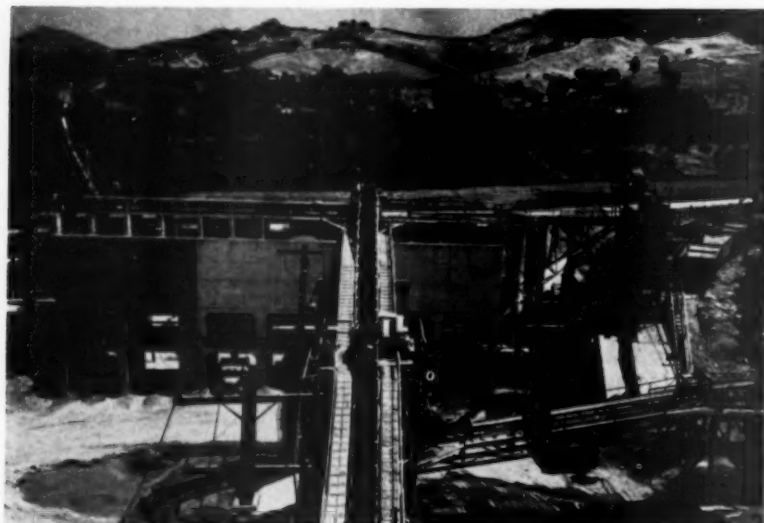
MADE IN CALIFORNIA
HEALDSBURG, CALIF.

Write for all the facts today!
BASALITE
The way to better
LIGHTER - STRONGER - BETTER

Advertisement which stresses the advantage of Basaltite aggregate in construction

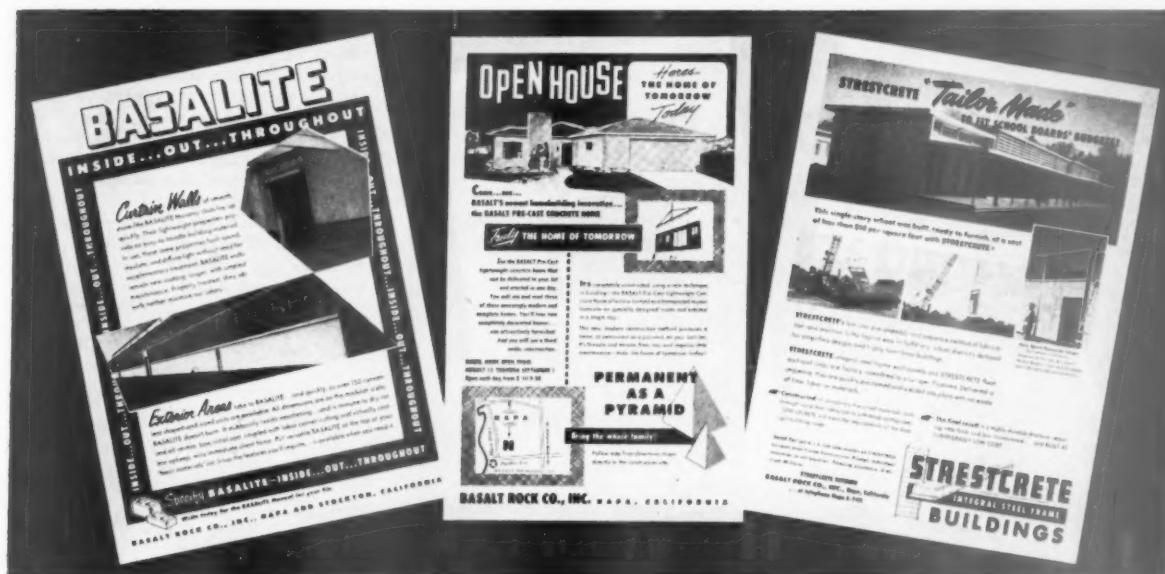
cific ocean. Some of its products are handled through dealers and distributors but the company is a great believer in having salesmen throughout its territory who are qualified to promote the use of concrete products.

It has 14 salaried and commission men outside Napa, each of whom has a definite territory and lives in it. These men handle the promotion of sales for the complete line of concrete products and will play a large part



Overall view of concrete-steel plant at Healdsburg, producing 500 t.p.h. of sand and gravel

BASALT ROCK



Typical examples of advertisements run in magazines serving the Basalt trade area

Advertising in *Architectural Record* features good representative jobs of Stresterete and Basalite products. The ads are written, whenever possible, to coordinate with the types of buildings featured in specific issues of the magazine which might be hospitals, schools, architects' offices or others. Twelve full pages are run per year, of which six are about Stresterete and six feature Basalite products. Stresterete advertising shows outstanding job applications of walls and slabs. Credit is given in the ads to the architects, engineers and contractors for the featured job and new advertisements are written for each insertion.

Advertising in the *Daily Pacific Builder* consists of Basalite products twice a week and ready-mixed concrete two times a week. Basalt supplied ready-mixed concrete plants in the Bay area are listed. The ads are alternated and the space is 4 x 5 in. Stresterete and precast walls have thusfar been the featured product in the *Wall Street Journal*.

Advertising in the *California Farmer* is of educational character consisting of a series of "do it yourself" ads. A typical series on Basalite will start out with the laying of the first course of masonry and carry on to show the placing of reinforcing, outlet boxes, sash, etc. Plans of farm buildings are shown and figures on costs are given. Readers are urged to write in for plans which are those supplied from the Portland Cement Association. The first advertisement on the precast home in the *California Farmer* recently drew over 200 responses in less than two weeks. Photographs of good Class A barns or plans available from the State Agricultural Department are the basis for advertising in the *Western Dairy Journal*.

Occasionally advertisements are run in newspapers on water-repellent paints, concrete barbecues, garden walls, patios and other miscellaneous products of interest to home owners. At intervals, advertising of water pipes is directed to municipal governments. The *Butane-Propane News* and the *California Farmer* are used for periodical advertising of "Basalt LP Gas systems."

Accurate records of advertising costs are broken down monthly for each company division, and there is a systematic followup of inquiries. Results have proven advertising to be very effective. As an example, an average of 300 responses per month is received from the 1½-page advertising carried monthly in *Sunset* magazine. A girl writes a letter to each inquirer and sends a copy to the salesman in the territory. Names and locations of the salesmen are given in the letter to the inquirer.

Many advertisements have attached coupons or cards to be filled out requesting additional information and practice is to reprint many advertisements for direct mailing pieces to architects, builders and contractors. Generous use is made of various printed literature, typical of which are educational pamphlets on garden walls of concrete masonry, instructions to Sunday gardeners on building with masonry, printed pieces on Basalite residential construction and brochures covering Stresterete construction in complete buildings.

Significant structures and projects built of the company's products are stressed in advertising and literature. An example was a 4-page illustrated bulletin in color prepared under the headline "This was Tehachapi" which presented a pictorial record of the shock-proof qualities of steel reinforced concrete masonry construction. This particular piece was not pre-



Seven sizes of uncrushed, washed gravel and five sizes of 100 percent washed crushed gravel are produced at Healdsburg

SHADE and SHELTER YOUR STOCK

with this **\$406.00**

BASALITE CATTLE SHED

CATTLE SHEDS... built of BASALITE... give your stock welcome relief from scorching sun, high wind storms. Your essential protection for feeding and exercising.

BASALITE The one price includes all the necessary units and tools. The entire structure is built of steel, and is ready to erect. The entire structure is built of steel, and is ready to erect. The entire structure is built of steel, and is ready to erect.

Build it with BASALITE

BASALT ROCK CO., INC., Napa, California

Build this "Pork Production Line" with only \$300 worth of BASALITE*

Farmer, Feed, Fatten Your Hogs... really there for the present market... its permanent security BASALITE

The double row hog house will accommodate 20 hogs in 100 sq. ft. of space. The unit is built of steel, and is ready to erect. The entire structure is built of steel, and is ready to erect. The entire structure is built of steel, and is ready to erect.

Build it with BASALITE

BASALT ROCK CO., INC., Napa, California

Advertising directed to the farmer and rancher

pared to capitalize on the disaster, which laid low many structures of other types, but as a tribute to the safety features of modern construction methods. It was the structures built with vertical and horizontal reinforcing placed in compliance with the uniform Building Code of the Pacific Coast Building Officials' Conference that held up, proving the regulations to be sound.

Basalt is a strong believer in the value of good photographs in getting the story of its products across and probably makes greater use of photographs in its advertising and overall sales effort than any concrete products manufacturer in the United States. The company has a photographic department with excellent equipment and a dark room in its main office building for development and printing. Photographic demands are heavy, requiring that a man be kept busy an average of six hours a day in making prints. The new office building contemplated will provide for an elaborate dark room.

A very comprehensive file of photographs is maintained for use in advertising, and available for sales personnel to show prospects, covering practically any type of job. Construction shots are given out as a service to contractors and others, illustrating progressive construction. The contractor makes use of such progressive shots to sell his clients on a given type of construction. Photographs illustrating a particularly noteworthy use of the company's products or structures

of special significance are often widely distributed. Prints are then made available to the salesmen in quantity and others are sent out to contractors, architects and engineers. The standard size of photograph is 8 x 10 glossy.

Salesmen are equipped with a sales

double duty : Garden : Burner and Barbecue

\$18.95

Complete... with grill. Sets up in 10 minutes, without mortar or tools!

• Burn garden clippings... barbecue or broil with this versatile BASALITE garden accessory. Masonry units assemble or take down quickly to move anywhere—use immediately! Attractively designed for a lifetime of all-purpose use. (No C. O. D.'s please.)

FREE FOLDER

BASALT ROCK CO., INC., Napa, California
 () Ship one BASALITE Garden BARBECUE-BURNER
 Shipped prepaid (\$19.52, inc. tax) () Send Folder

NAME _____
 ADDRESS _____
 CITY _____ STATE _____

Advertising that promotes sales of specialties

kit of 8 x 10 job photographs and carry a second one with loose-leaf engineering drawings, specifications and engineering data of interest to architects, engineers and contractors. Occasional use is made of moving pictures. Among giveaways are mechanical pencils, mason's lines for concrete block, aluminum line stretchers and masons' twigs.

Basalt Rock Co. is an active supporter of the Napa Country Club, schools and civic projects. Its key men are active on civic committees and in Boy Scout work, association work and other activities of community interest. The company and its key men are members and active in many local and regional associations as well as national associations.

References

Detailed information on various of the activities of Basalt Rock Co. has been published in Rock Products over the years as follows:

- "Basalt Rock Co. Plant," March 26, 1932, issue, pp. 9-16 (Napa crushed stone plant)
- "Screening 3000-lb. Rocks," April, 1937, issue, pp. 58-59
- "Lightweight Building Unit and Cambered Shingle," February, 1939, pp. 63-65 (Napa block plant)
- "Fair Boosts Concrete House," January, 1940, pp. 117 and 120-121.
- "Big Rock Protects Harbor," December, 1945, pp. 92-95 (McNear's Point quarry).
- "Building Third Modern Concrete Block Plant," April, 1947, pp. 163-165 (Stockton plant).
- "Manufacture Both Pipe and Block," September, 1947, pp. 130-132 (Stockton plant).
- "Diversify Production to Increase Sales," April, 1948, pp. 186-188 (Napa block plant).
- "Introduces New Product," October, 1949, p. 162 (Streeterete).
- "Basalt Rock Co. Entertains N.C.M.A. Directors," December, 1949, pp. 160-162 (Napa block plant and Streeterete).
- "Prestressed Floor and Roof Slabs of Concrete Masonry Units," January, 1950, pp. 197-201 (Streeterete).
- "Lightweight Expanded Clay Aggregates for Precast and Monolithic Concrete," August, 1950, pp. 231-233 (Rockliffe plant).
- "New Applications of Prestressed Assembly of Masonry Units," July, 1951, pp. 109-111.
- "Basalt Rock Co. Opens Research Laboratory for Concrete Products," November, 1952, pp. 134-135.
- "Hessburg Plant—Basalt Rock Co.," January, 1953, pp. 100-101 (sand and gravel).
- "Ready Mix in the San Francisco Bay Region," January, 1953, pp. 230-241 (in part).

Gypsum Promotion

THE GYPSUM ASSOCIATION has launched an "add-a-room" promotion program, aimed at the multi-million dollar home-improvement market. Lloyd H. Yeager, general manager of the association, stated that the drive is intended to reach the 7,000,000 owners of one-family homes who need additional living space. He explained that the industry will use extensive advertising and promotion to bring its program to the public. He added that residential modernization and expansion is now a \$6,500,000,000-a-year market.

Brazilian Cement

WITH THE ADDITION of 12 new cement plants currently underway, Brazil's cement production is expected to be increased to 4,300,000 tons per year by 1955. This would be a 176 percent increase over the 1,565,000 tons produced in 1950.



Erecting 75-ft. clear span Strestcrete integral steel frame building with 6-in. wall and 4-in. roof slabs

STRESTCRETE

Floor, Roof and Wall System

STRESTCRETE, originally designed and promoted by the Basalt Rock Co. as a floor and roof slab, has gradually evolved into the Strestcrete system of construction. Products now marketed under this trade-name include wall panels, columns, beams, integral steel frame buildings, silos and water tanks, as well as the original floor and roof slab.

From a beginning that was comparatively meager when contrasted with other Basalt developments, Strestcrete has increased in stature to where it is competing on a very favorable basis against all other types of construction materials in many parts of the country.

Licensees

At the present time, eleven concrete products manufacturers in the United States and Canada are licensed to manufacture Strestcrete products. Those either actively producing or preparing to manufacture Strestcrete include:

Adams Concrete Products Co.
Ypsilanti, Mich.
Anchor Concrete Products, Inc.
Buffalo, N.Y.
Atlas Strestcrete Corporation
El Paso, Texas
Basalt Rock Company, Inc.
Napa, Calif.
Barnes & Cone, Inc.
Syracuse, N.Y.

Cleveland Builders Supply Co.
Cleveland, Ohio
Illinois Brick Co.
Chicago, Ill.
La Brique du Nord, Limited
Rouyn, Quebec
Canada
Plastierete Corp.
Hamden, Conn.
Layrite Concrete Products, Inc.
Spokane, Wash.
Rocklite Products
Ventura, Calif.

Personnel

Manager of the Strestcrete Division at Basalt is Harold A. Price, who has been in charge of the Division since the product was originated in 1949. He also supervises the Strestcrete sales efforts of 14 company salesmen and eight dealer accounts. Engineer in charge of field erection is Edward C. Godsil. Ladislav Beve supervises engineering design and estimating, and has the assistance of three draftsmen. Strestcrete foreman is Gifford C. Dickel, who supervises a labor force of 12 men.

For the advantages of centralization and economy, production by the company is limited to the Napa plant. Departments of engineering, production, sales and field erection are closely integrated with other divisions of the company. Although the Division operates with almost complete autonomy, every job, whether large or

small, has and requires the cooperation of one or more other divisions of the company to the degree that now, practically every component of a Strestcrete structure is manufactured by the company. As an example, an integral steel frame building is assembled from columns, girders and miscellaneous steel parts manufactured by the Steel Products Division; windows, rolling doors and door frames from the Steel Sash Department; and Strestcrete units and paint manufactured by the Basalite Division.

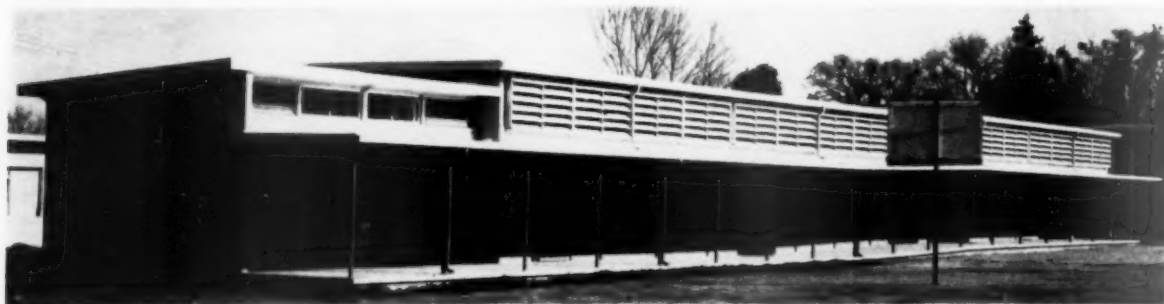
Production Facilities

Production facilities at Napa are housed in the grinding, sub-assembly and assembly buildings.

Grinding equipment consists of three double-spindle grinders: A 42-in. machine manufactured by Gardner Machine Co., a 30-in. and a 26-in. machine, both of which were designed and constructed by Basalt. These machines, with all special cutting equipment, are in a 32- x 120-ft. Strestcrete building. Dust control equipment, consisting of three cyclones and one bag-type dust collector, are positioned just outside the building, immediately behind the machines.

Reinforcing steel is straightened from coil stock stored near the sub-

BASALT ROCK



Completed view of Strestcrete integral steel frame school building with brick veneer

assembly building. The straightening machine, also designed and built by Basalt together with an Oster threading machine, are positioned for straight line production of component parts which feed from sub-assembly to the main assembly building.

The assembly building is a 50- x 140-ft. structure with craneways extending 50 ft. beyond each end of the building for added storage and loading space. Three assembly tables are positioned with adequate space for working area and storage of Strestcrete components. Roof and floor slabs are assembled on a 5 ft. 4 in. wide by 32 ft. long assembly table. Integral steel frame building wall sections are assembled on a 10- x 32-ft. table and tongue-and-groove wall panels are assembled on a hydraulically-controlled tilting table 8 ft. high by 28 ft. long. All three tables can be used simultaneously. Completed panels are handled by two 4-ton bridge cranes. Currently, Strestcrete is being manufactured two shifts daily for an average

of eight months out of the year and one shift for the remaining four months.

Floor Slabs

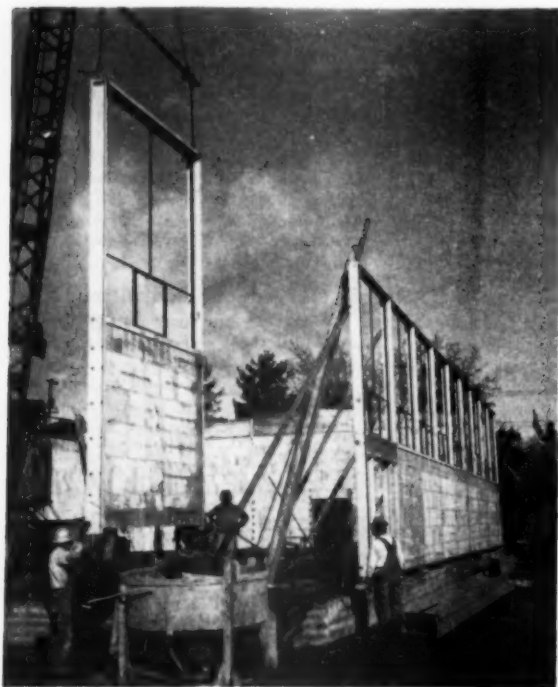
Floor slabs are assembled from concrete segments manufactured on Besser Super Vibrapac machines. As needed the units are taken from stockpile and precision-ground to accuracies of .002 in. for parallelism and .005 in. for flatness. Planks or panels composed of multiple panels are assembled, using a plurality of ground elements with steel plates at the end of each assembly. Threaded reinforcing rods are placed in splines molded into the sides of the units and laced through corresponding holes in the end plates. Nuts are placed on ends of reinforcing rod and tension, not exceeding the allowable working stress of the steel used, is applied by tightening the nuts with a calibrated torque wrench.

Erection is normally handled by crane. The average panel is 4 ft. wide,

but panels as wide as 8 ft. are sometimes used. A minimum of concrete grout is poured between the slabs in the form of a joist for coverage of exposed steel and to key the slabs together. Floor slabs are manufactured in 3-, 4-, 6-, 8-, 10-, and 12-in. thicknesses.

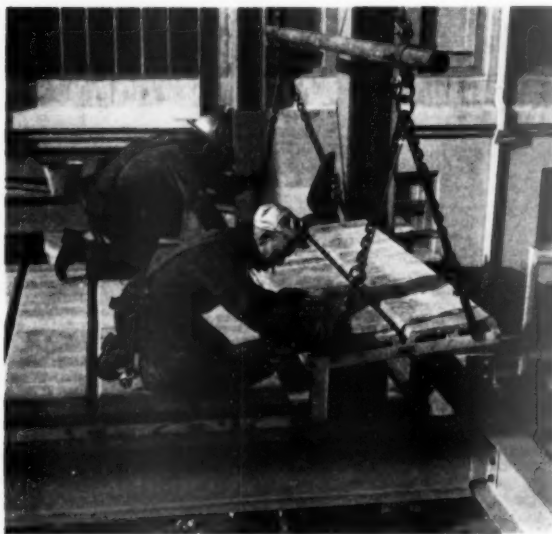
Wall Sections

Of the various wall sections developed, tongue-and-groove siding has been the most promising, and has been adapted to varied types of installations. The material was originally intended for use as a non-load-bearing curtain wall for the exterior of steel frame buildings. Like the floor and roof slab, it is assembled from precast segments, but instead of having a spline section, holes are provided through the elements to receive the threaded reinforcing rods. A tongue is cast on one end of each unit with a corresponding groove at the other end. Mastic is used to seal the tongue-and-groove joint between individual



Left: Erecting 8-in. thick Strestcrete units in integral steel frame walls of Napa County library

Below: Steel erectors placing 4-in. floor slabs in refinery building



planks of an assembled panel. The ground surface between units of each plank is sealed by the application of a waterproof paint after the material has been erected. Attachment to steel frame buildings is accomplished by welding or bolting the end plates of the panel to the steel columns.

Integral Steel Frame Buildings

Extensive use of tongue-and-groove siding led to the development of the integral steel frame building. By substituting light steel channels for the flat end plates and welding the channels of adjoining panels, load-bearing box type steel columns can be formed within the Strestcrete wall. A welded plate steel girder can then be attached to the columns to support a Strestcrete roof. Buildings with walls as high as 22 ft. 8 in. and clear spans up to 75 ft. are available. The size of preassembled sections is limited only by the capacity of equipment to transport and erect them.

Studwall

Strestcrete studwall is a form of mortarless block construction usually erected at the jobsite. Units are a 24-in. long, precision-ground, three-cell, open-end design. When blocks are stacked one upon another, cells align vertically with the open ends of adjoining units forming a cell. A reinforcing rod embedded in the foundation aligns with this vertical joint. When the cell is poured with concrete a reinforcing stud is formed thus providing an internally reinforced concrete wall section, which also bonds the blocks together internally. Columns and beams are frequently constructed in the same manner using standard as well as special concrete block.

Silos and Water Tanks

Grain bins and water tanks are constructed using radius block 24 in.



Dairy silos of Strestcrete are 16-ft. diameter by 25 ft. high

long and 4 in. thick. These are externally reinforced with steel hoops. Bins for the storage of lightweight aggregate as large as 50 ft. in diameter and 65 ft. high have been constructed in this manner, except that in this instance internal reinforcing was used.

Strestcrete has received wide acceptance in all areas in which it is being marketed. As this is being written, public buildings currently under construction for which Basalt has supplied material, include Napa County Public Library, Napa County Airport Administration Building, California State Civil Defense Headquarters Building, California State Highway Patrol Academy, Yuba County Agricultural Exhibit Hall and Nevada City Veterans Memorial Building.

One of the larger and more interesting buildings employing Strestcrete was recently constructed by a major West Coast oil refinery. A welded

steel frame structure four stories high was designed so that it could be expanded horizontally or vertically as may be dictated by future space requirements. Four-inch floor and roof slabs and wall panels of 4-in. thick Strestcrete tongue-and-groove siding were attached to the steel frame by welding. All Strestcrete was placed by steel erectors. By closely coordinating shipment of Strestcrete to coincide with erection of steel, it was possible for one craft to complete the fully enclosed shell of the building with walls and floors in place in the remarkably short time of nine working days. For finish, the exterior of the building was plastered and the interior face of the Strestcrete was furled and either plastered or veneered with hardwood.

Lightweight Aggregate

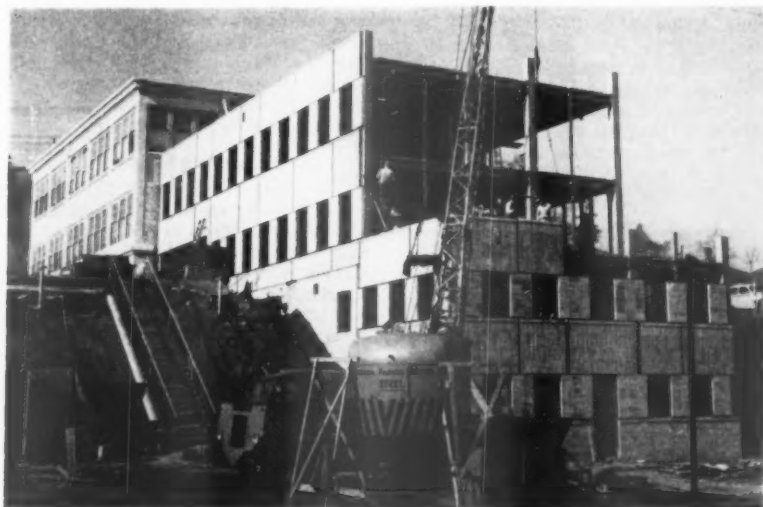
THE GARY SLAG CORP. has completed construction of a lightweight aggregate plant at Gary, Ind. P. J. Mack, general superintendent of the corporation, will direct production at the new plant. The corporation also operates a lightweight aggregate plant at Duluth, Minn.

Reopens Quarry

WESTHOFF CONSTRUCTION Co., Morrowville, Kan., recently reopened a quarry near Fairbury, Neb., for the production of agricultural limestone. Ed Westhoff, owner, also operates a quarry at Morrowville, and has announced plans to open a third quarry at Western, Neb.

Highway Research Meeting

THE HIGHWAY RESEARCH BOARD of the Division of Engineering and Industrial Research, National Research Council, will hold its 33rd annual meeting at the building of the National Academy of Sciences and the National Research Council, Washington, D.C., January 12-15, 1954.



Placing Strestcrete tongue-and-groove siding on steel frame for refinery building



Casting plant with attached sub-assembly and warehouse building nearing completion

BASALT Introduces the Precast Concrete Home

IN NORTHERN CALIFORNIA the trade name of the Basalt Rock Co., as it applies to concrete masonry units, is so closely identified with good quality concrete masonry homes that it is not uncommon for potential customers to walk into the Basalt office and say, "I want to buy a Basalite home." To translate the customer's desire into a tangible sale of masonry units, steel sash and door frames, paint and other related items manufactured or retailed by the company involves the complicated process of recommending realtors, architects, general and masonry contractors. In more instances than not, the potential customer strays from the course recommended and either purchases a ready built home or has one constructed of some other material.

To be in a position to close the sale while the buyer is in the mood, without dependence upon others, Basalt has now undertaken one of the most ambitious programs ever devised for the manufacture of prefabricated concrete homes. At present, ten models are available—they range in size from an expandable two-bedroom model of 806 sq. ft. with 274 sq. ft. garage to a three-bedroom model of 1342 sq. ft. with 431 sq. ft. garage. The homes are complete in every respect with Heat-alator fireplace, central heating system, tile bathrooms, enamel painted

wood kitchen cabinets with tile or plastic wood tops, 30 gal. gas water heater, kitchen exhaust fan, wardrobe sliding door closets, sliding glass window wall and steel door and window frames. The buyer has a choice of hipped or gabled wood or flat concrete roof, asphalt tile or parquet hardwood floors and can select his own colors and tile.

Price-wise the Basalt house probably would be classified in the medium price bracket, but it is low in cost considering quality of construction. The structural shell erected ranges in price from \$3.30 to \$4.20 per sq. ft. with the completed structure costing in the neighborhood of \$10 per sq. ft.

Unusual Construction Method

While the interior arrangement of the houses would be considered conventional, with certain modifications permitted by the mild west coast climate, the structural system is completely unorthodox.

The foundation consists of concrete piers. Holes are drilled of a diameter and depth required to fit soil conditions. These are then filled with concrete and a $\frac{3}{8}$ -in. steel plate is placed and anchored on top of the concrete pier to become the bearing base plate for the wall section. All walls are cast 9 ft. 2 in. high and incorporate a grade beam 14 in. deep which spans

from pier to pier. Exterior walls and partitions are 6 in. thick.

Reinforcing steel is $\frac{5}{8}$ -in. diameter mild steel rods which are fitted with positive end anchorage and pretensioned to 20,000 p.s.i.; 15,000 lb. of prestress is retained after completion of curing. Horizontally, four rods are used in the grade beam section of the wall and four additional rods are used above openings and at the top of wall. Vertical rods are placed at ends of slabs, at the sides of all openings and at 4-ft. centers between openings. Both vertical and horizontal steel are pretensioned.

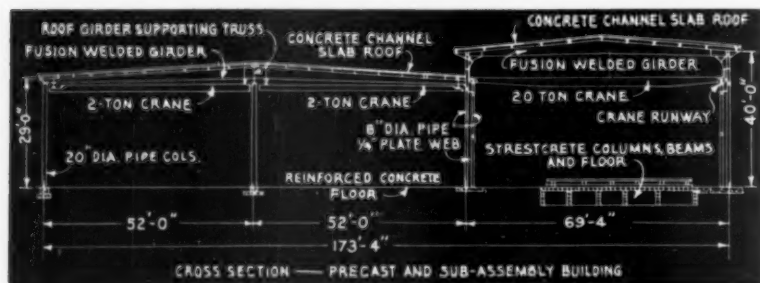
Wall slabs have a maximum length of 39 ft. 4 in. Conduit, outlet and junction boxes, steel door and window frames are cast integrally with the wall. The plumbing wall is 8 in. thick, with hot and cold supply, waste and vent systems cast in place. All supply lines are of copper and mixing valves for tub and shower are accessible for maintenance from back of the wall.

An asphalt membrane is used beneath the concrete slab floor and wall panels are dipped in a special asphalt compound over the grade beam section to prevent moisture in the walls through capillary attraction.

Casting Plant

The plant which Basalt has designed and constructed to produce these new homes consists of a casting building with adjoining combined sub-assembly and warehouse building for fabrication and storage of component parts. Both buildings are constructed entirely of materials manufactured by the company.

The casting plant is 903 ft. long by 71 ft. wide with an eave height of 40 ft. Instead of usual structural members, the main columns employ two 8-in. dia. pipes for the flanges and a $\frac{1}{4}$ in. thick steel plate, intermittently welded to the pipes, forms the web. The inside pipe flange car-



Cross section details of precast and sub-assembly building



Above: Lifting a newly cast wall section into one of the curing pits



Right: Slabs stockpiled in curing pits

ries the crane girders, also fabricated of pipe and plate, while the outside pipe flange supports the fabricated plate steel girders. The roof is 3½ in. thick channel tile. Two 20-ton bridge cranes operate throughout the entire length of the casting building.

Casting tables, 31 in all, are mounted over the basement which is 8 ft. deep by 40 ft. wide. The floor over the basement between tables is of 4-in. Stresterete, and is supported on Stresterete columns and beams. Walls of the basement are of 12 in. thick Stresterete studwall.

The sub-assembly building is 294 ft. long by 104 ft. wide with an eave height of 28 ft. Columns are 20 in. dia. pipe, and girders are fabricated from plate steel. The roof is precast and channel tile. Exterior walls are

of 6 in. thick Stresterete tongue and groove siding. Two 2-ton cranes will be installed in this building.

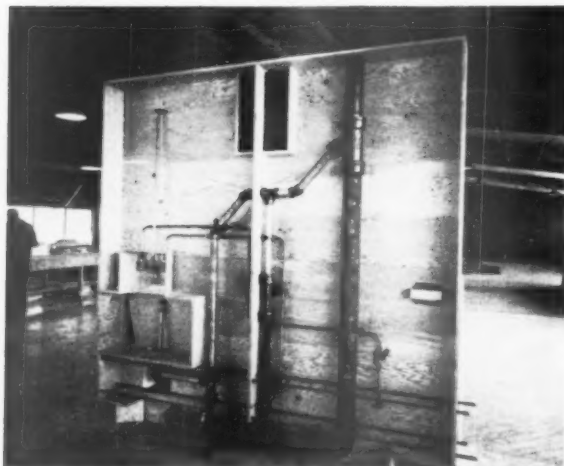
Steps In Manufacture

The casting tables are of a unique design 12 ft. wide by 40 ft. long. Constructed entirely of steel, they can be tilted on their horizontal axis to the vertical position. Each table is actuated by two permanently mounted hydraulic rams. Edge members, which are actually the forms of the panels to be cast, are adjustable for both length and width as well as placement of reinforcing steel. Special yokes and other attachments are fitted to each edge member so that both vertical and horizontal steel can be prestressed.

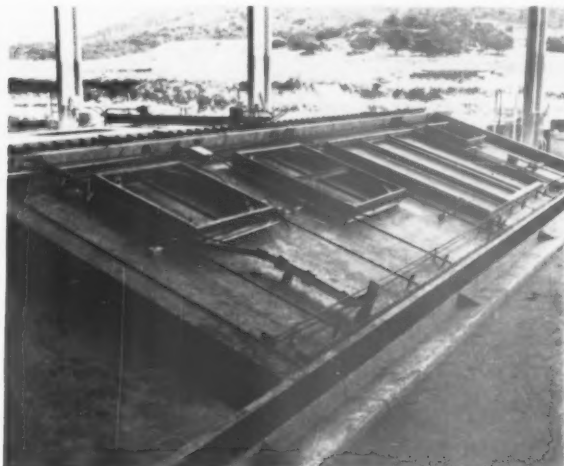
The manufacture of a wall section

begins by material from the warehouse being fabricated into sub-assemblies. Electricians cut and bend conduit and attach switch, outlet and junction boxes. Plumbers assemble copper pipe, fittings and valves into hot and cold water supply lines and combine cast iron pipe, fittings, traps, etc. into preassembled plumbing stacks for waste and vent lines. Ironworkers straighten coils of reinforcing rod, cut it to length and attach end anchorages and fittings for prestressing. Pre-assembled material is then taken to the casting tables, and steel door and window frames are positioned and anchored.

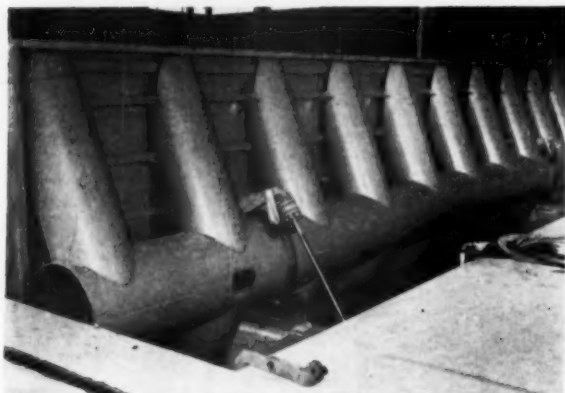
Placing of concrete is the next operation. A batching plant is planned for the future, but at present concrete is delivered by transit mix trucks



Mock-up of bathroom wall showing fabricated plumbing stack, water lines, valves and fixtures



Casting table with door and window frames, reinforcing steel, plumbing and electric conduit and outlets in position prior to pouring



Rear view of one of the 40-ft. casting tables rotated to the vertical position for stripping



Construction view of precast plant basement showing Streestrete wall units, columns, beams and floors with casting table on pedestal

from a nearby ready mix plant. Trucks discharge directly into a 4-cu. yd. bucket with built-in agitator and air-actuated discharge gates. The bucket is transported within the building by one of the two 20-ton bridge cranes. The exact amount of material required for each panel is released from the concrete bucket in several locations within the form and is then worked and vibrated into position. A heavy metal screen with pneumatic external vibrator attached is used to consolidate the concrete. Exterior wall surfaces are given a broom finish and inside walls are troweled smooth.

Basalt's new expanded shale sealed surface aggregate is used exclusively. Proportions of the concrete for a 1-cu. yd. batch are as follows:

- 470 lb. cement
- 475 lb. 1-in. Basalite expanded aggregate
- 450 lb. $\frac{3}{4}$ -in. Basalite expanded aggregate
- 1250 lb. Basalite expanded aggregate sand
- 27 gal. water

(Weights of aggregate are saturated—surface dry.)

This mix is very dry, having a 1 to 2-in. slump and the finished product at 28 days has a strength exceeding 3000 p.s.i. and weighs 90 lb. per cu. ft.

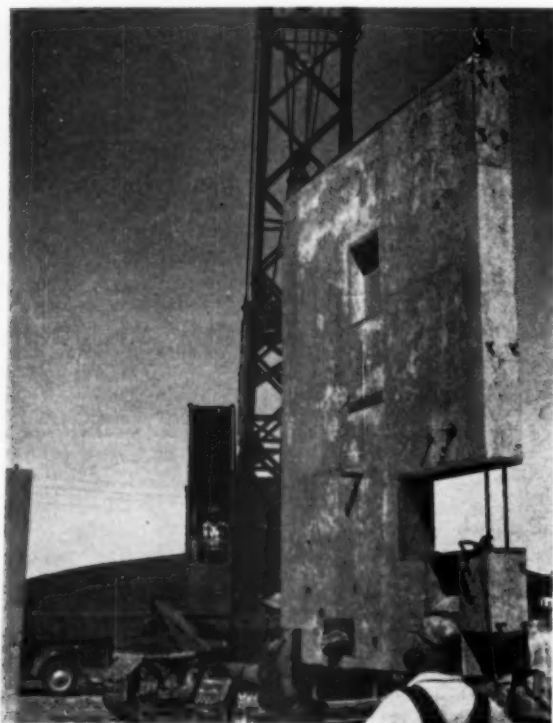
After a minimum 16-hr. period, the external anchorages are removed from the reinforcing steel. Top and side forms are next removed, and the casting table is then rotated on its longitudinal axis so that the cast panel is

in the vertical position. Lifting bails are attached to the vertical reinforcing steel, and the panel is removed from the table by one of the two overhead traveling cranes and placed in one of the curing pits.

Curing System

The curing pits or chambers occupy one end of the casting plant. Each pit is 65 ft. long by 8 ft. 2 in. wide and 13 ft. deep. There are 30 in number and have a combined curing and storage area sufficient to accommodate the walls of 60 complete houses. Panels are arranged vertically with a space between each slab. Removable pit covers are of 6 in. thick concrete.

Curing equipment consists of a surface combustion 3,000,000 B.t.u. scroll



Left: Precast plumbing wall section, 8-in. thick, showing recess for installation of bathtub and medicine chest



Pouring lightweight aggregate concrete into form on the casting tables

type air heater equipped with dual low-pressure inspirator burners. Combustion air is supplied by a 675 c.f.m. turbo type blower. The heater is connected to a 30,000 c.f.m. scroll type fan.

Temperature and humidity controls are recording-type, electro-air operated with wet and dry bulb assemblies to measure and control relative humidity as well as temperature.

For the curing cycle, the heated air passes through a humidifier equipped with spray nozzles and baffle chamber where it becomes water saturated. As the air passes through the baffles, free water drops out with the decrease in velocity and the moist air then passes to the curing pits and back through the blower for reheating and moisture conditioning.

Except for the humidifier, duplicate equipment is provided for the drying cycle. Air is drawn from the outside atmosphere, passed through the heater and circulated through the curing pits. This air with its load of moisture is partially exhausted and then reheated to continue the cycle until the panels are dry.

Additional mechanical equipment used in the plant includes:

2—35 g.p.m. 1000 p.s.i. pressure pumps for the hydraulic system.

1—two-stage 125 p.s.i. horizontal fire pump for high pressure wash down water.

1—294 c.f.m. 125 p.s.i. horizontal type air compressor

10—300 amp. electric arc welding machines.

Panels, as required, are removed from the curing pits by one of the overhead cranes and taken directly to the loading station where they are loaded on especially designed trailers for delivery to the jobsite. The loading station is arranged so that three trailers can be loaded at one time.

Each trailer has a central "A" frame for supporting the panels vertically and is capable of carrying 9 ft. 2 in. x 40 ft. or 12 x 20-ft. panels with a total net load limit of 39,600 lb. Three trailers will haul all the



A completed precast house, with wood roof in this case

walls of a three bedroom house. A standard three-axle semi-trailer-tractor provides the motive power.

Basalt's precast house can be erected on any site having sufficient level area with adequate access to accommodate the construction equipment. At the jobsite, wall panels are hoisted from the trailers by a 20-ton mobile crane, positioned and leveled on the concrete piers and immediately welded. Walls of the two bedroom model can be erected in 2½ hr. with the larger models, complete with roof and fireplace, requiring about 7 hr.

Steel inserts attached to the panel reinforcing are provided at the ends of all wall panels and at points where walls intersect. The connection between wall panels is made by welding these inserts together. As each wall panel is room length, the only joints are at corners. Exterior joints are caulked with oakum and mastic, and down spouts from the roof are so located that they cover and protect the joints. Interior corner joints are covered with wooden mouldings.

The 4-in. concrete floor slab is poured from inside after the walls have been erected. Hook bolts screw into wall inserts, and these are attached to the floor reinforcing to tie all walls together and provide a solid diaphragm to resist seismic forces. When a wood floor is desired, parquet hard-

wood is laid over the concrete slab. Usually asphalt tile is used.

At the present time, houses are sold on a custom basis to individuals and contractors. Several subdivisions, now in the plan stage, will be started in the near future. When in full operation on the three bedroom model, Basalt will have a production capacity of two to three houses per day depending on whether they have concrete or wood roofs.

While not by any means limited to the production of precast residential structures, the plant was primarily designed with this product in view. It is contemplated that a number of specialties will be produced here in the future.

Basalt's precast operation is directed by Jack Streblov. Field erection is supervised by E. F. Henry. Sales are handled by Basalt's own staff of salesmen handling the company's other products as well as by their dealers and distributors.

Mexican Cement Production

ACCORDING TO A RECENT REPORT in *Mexican Economic Panorama*, which was based on statistics compiled by the Argentine Portland Cement Manufacturing Association, Mexico has become the leading cement-producing nation in Latin America. Mexico, with a 1,639,000-ton output, ranks only behind the United States and Canada, among producers in both North and South America. In 1949, Mexico was only the fifth-highest producing country, ranking behind Argentina and Brazil as well as the United States and Canada. Production in the first six months of 1953 in Mexico totaled over 846,700 tons, which was an increase of about 42,000 tons over the tonnage reported for the corresponding 1952 period.

Purchases Silica Plant

PORTAGE-MANLEY SAND Co., Rockton, Ill., has purchased Aubuchon Silica Mining Co. of Festus, Mo., formerly operated by Ellis, Edgar and Ivan Aubuchon. Ivan Aubuchon remains in charge of plant operations.



Twenty-ton trailer designed to carry 9 ft. 2 in. by 40-ft. and 12 x 10-ft. precast wall sections

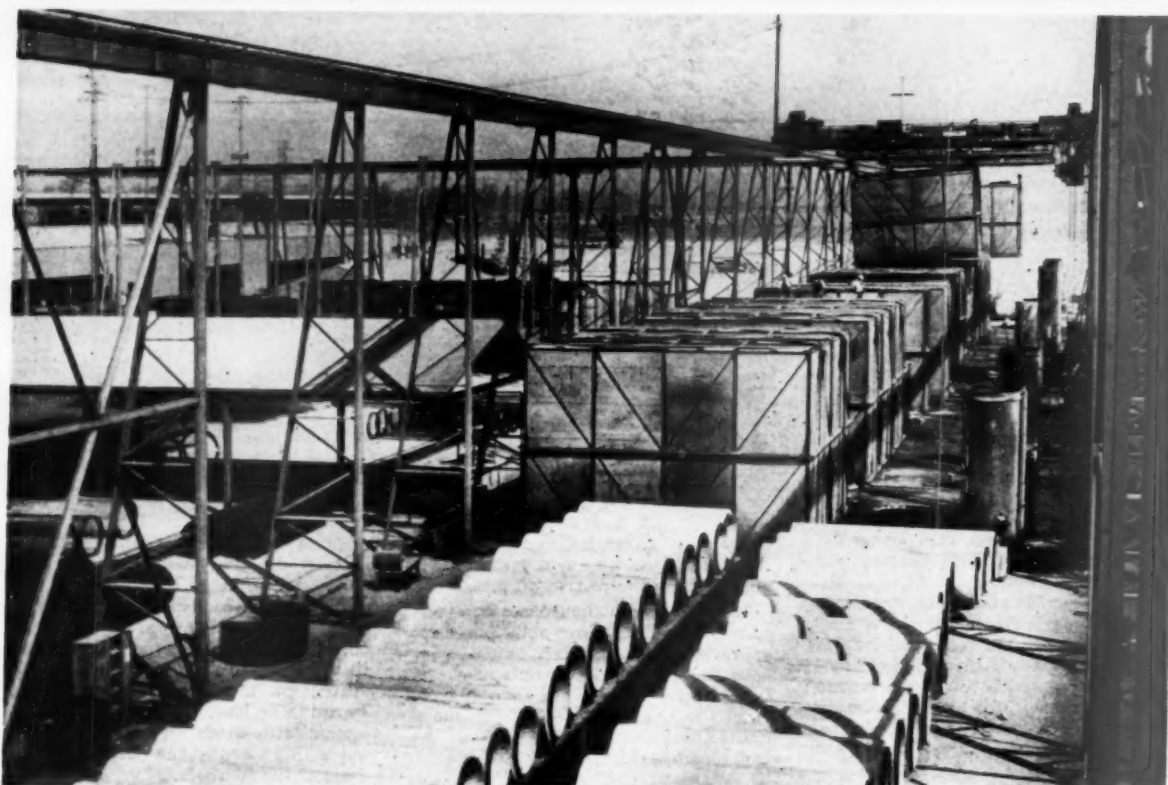


Photo by Homer Barnes

Fig. 1: Pipe plant where steel lined concrete pipe is manufactured

Reinforced Concrete Pressure Pipe

New plants built by Basalt Rock Co., at Fontana, Calif., manufacture concrete pipe and steel pipe. Large contract for San Jacinto-San Vicente Aqueduct currently being supplied

By M. W. LOVING

A LARGE GOVERNMENT PROJECT, now under construction, for which Basalt Rock Co., Inc., is a major supplier, is the second pipe line of the San Jacinto-San Vicente Aqueduct. It was designed, and the construction is being supervised, by the Bureau of Reclamation, Department of the Interior for the United States Navy. From the excellent map by artist W. M. Shideler, Denver, Colo., one can see at a glance the relative location of the new aqueduct with respect to the Colorado River Aqueduct, from which the water is diverted at San Jacinto Reservoir and transported by gravity for about 70 miles to San Vicente Lake, which is the main source of water supply for San Diego, Calif.

Depicted on the map are two of the world's greatest engineering projects—Hoover Dam and the Colorado River Aqueduct; these are in reality companion projects because about 38 percent of the power developed at Hoover Dam is required to elevate the water in five pump-lifts, from an elevation of 450 ft. at Parker Dam to an elevation of 1807 at Hayfield Reservoir. To this actual elevation of 1357 ft., a static head of 260 ft. was added to compensate for friction losses, making a total pump-lift of 1617 ft. From

the east portal of Hayfield Tunnel, 126 miles west of the aqueduct intake at Parker Dam, the water flows by gravity to Mathews Lake, the terminus of the main aqueduct, and thence through the Upper Feeder Distribution System to the 13 cities comprising the Metropolitan Water District of Southern California.

The Upper Feeder Distribution System of the Colorado River Aqueduct, which distributes the water to the 13 cities of the Metropolitan Water District of Southern California, was constructed in large part with reinforced concrete pressure pipe made in 12-ft. lengths and in diameters up to 12 ft. 8 in. The largest units weighed 43 tons. For the higher heads the steel cylinder type pipe was specified and no cylinders were required for the lower static heads.

Steel cylinder type, reinforced concrete pressure pipe was developed in France by M. Bonna. An official report made to the Engineer-Commissioner of the District of Columbia in 1925, when this kind of pipe was first used in Washington, D.C., follows:

"In 1894 the first installation of steel cylinder reinforced concrete pipe was made in Paris under the direction of M. Bonna who was the Director of the Department of Public



Fig. 1A: Couser Canyon Siphon where the 48-in. reinforced concrete pipe line operates under a maximum static head of 600 ft. (260 p.s.i.)

Works. The experiment was successful and M. Bonna organized a company which does the largest business of its kind in Europe and had up to 1925 installed some 1600 kilometers of reinforced concrete pressure pipe. The history of these pipes is very satisfactory."

Bids for the second pipe line, San Jacinto-San Vicente Aqueduct were received by the Bureau of Reclamation under Specification No. DC-3822 at the District Public Works Office, Eleventh Naval District, San Diego, Calif., on November 20, 1952; schedules 1, 2 and 3, north of the San Luis Rey River, were awarded to three contractors for a total sum of \$7,832,647.50. The contract for the San Luis Rey River crossing, requiring steel pipe, operating under a static head of 933 ft., was awarded another contractor for the sum of \$671,380. Schedules 1, 2 and 3—south of the San Luis Rey River were awarded to the S. A. Healy Co., Chicago, Ill., for a total sum of \$6,798,101; the sub-contract for manufacturing the 28.6 miles of 48 and 54-in. dia. reinforced concrete pressure pipe was awarded to the Basalt Rock Co., Inc., Steel Products Division, Napa and Fontana, Calif. In this article we are describing the manufacture, transportation and installation of the pipe required for the S. A. Healy Co. contract.

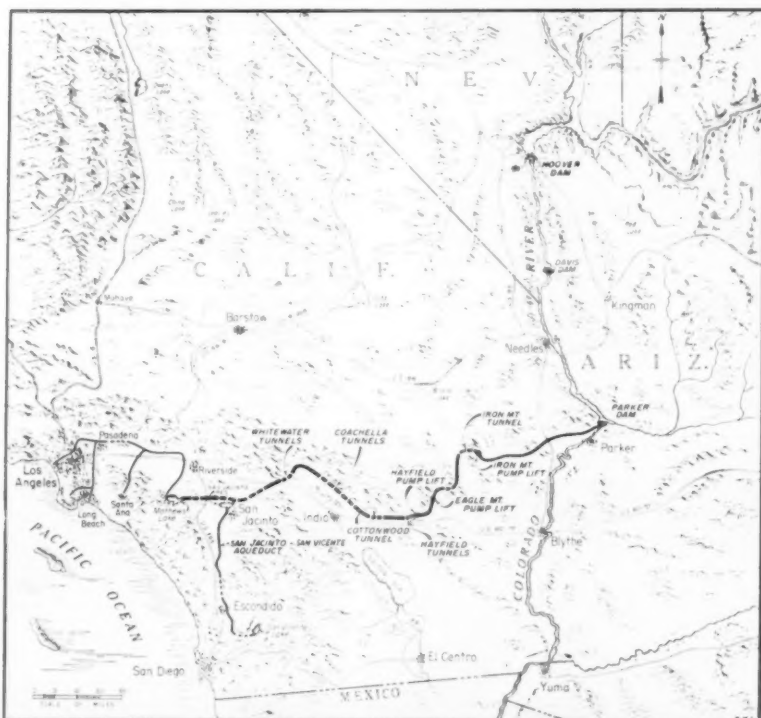
Under the Bureau Reclamation specification, 151,552 ft. or 28.6 miles of 48 and 54-in. reinforced concrete pressure pipe are required. The 48-in.

Views showing handling of aggregates and cement. Fig. 2: Truck dumping aggregates to storage pit with a capacity of 500 tons; truck has a capacity of 20 tons. Fig. 3: Conveyor inclining up to the bin over batching plant. Fig. 4: Close-up of conveyor. Fig. 5: Bulk cement being unloaded from truck and trailer

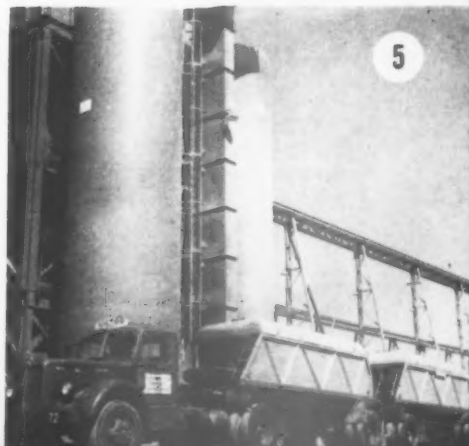
pipe is made in 20-ft. lengths and the 54-in. pipe in 16-ft. lengths; for all static heads exceeding 100 ft. and up to 650 ft., the steel cylinder type is specified and for all static heads of 100 ft. and less, the steel cylinders are not required. Steel joint rings, with round-rubber gaskets to seal the joints, are specified for both classes of pipe. The Couser canyon siphon, where the 48-in. pipe operates under a head of 600 ft. is shown in Fig. 1A.

Reinforced Concrete Pressure Pipe Manufacture

Located at Fontana, Calif., about 11 miles north of Riverside, the Basalt Rock Co., Inc., Steel Products Division, Napa, Calif., has erected an ultra-modern concrete pipe mill where this pipe is now being manufactured. The steel cylinders, steel joint rings and steel specials are produced in a steel pipe mill, alongside the concrete pipe mill at Fontana. An enlarged view of the concrete pipe mill is shown, in part, in one of the illustrations, Fig. 1. Both of the mills and all the facilities shown were manufactured and erected since January 1, 1953. Figs. 2 to 5 show how aggregates and cement are handled.



Map showing locations of San Jacinto Reservoir, the San Jacinto-San Vicente Aqueduct and San Vicente Lake, which is the main source of water supply for San Diego, Calif. Water will be taken from the Colorado River Aqueduct at the rate of 170 cu. ft. per sec., from San Jacinto Reservoir. The intake of the Colorado River Aqueduct is at Parker Dam, 155 miles below Hoover Dam





Views showing casting operation. Fig. 6: Base rings in groups of eight. Figs. 7 and 8: Concrete is distributed to each of the molds with two 4-cu. yd. steel buckets. Workman riding bucket signals to crane operator, releasing concrete in bucket by air-operated gates in bucket. Two air vibrators on each mold consolidate concrete in about 40 min.

The concrete pipe mill is 750 ft. long, 60 ft. wide, with a clearance of 50 ft. under the three cranes. Seventeen curing boxes are required, 15 of which are 32 ft. long, 16 ft. wide and 22 ft. high; two of these curing boxes are 32 ft. long, 8 ft. wide and 22 ft. high. As shown in the illustrations, Figs. 7 to 12, the pipe are produced and cured in groups of eight and it takes about 220 cu. yd. of concrete to fill the steel molds, every day. There are 34 steel molds for 48-in. dia. and 20-ft. long pipe; 11 steel molds for 54-in. dia. and 16-ft. long pipe; two steel molds for 48-in. dia. and 10-ft. long pipe, and two steel molds for 54-in. dia. and 8-ft. long pipe. Because the pipe must be steam-cured for 72 hr., at least three steel base-rings are required for every mold.

With the modern concrete batching plant, and using two 4-cu. yd. steel buckets to fill the molds, the concrete is placed and consolidated by vibration every day from 8:00 a.m. to about 2:00 p.m. With these facilities, the mill has a capacity of 892 ft. of 48 and 54-in. reinforced concrete pressure pipe per day.

The first pipe line of the San Jacinto-San Vicente Aqueduct was constructed in 1945-47 with reinforced concrete pressure pipe of the steel cylinder type for the higher heads, but the steel cylinders were not required for the lower heads. Also designed by the Bureau of Reclamation for the Navy, with the construction supervised by the United States Navy,

were a number of tunnels; fortunately, these tunnels had sufficient capacity to take care of the 85 cu. ft. per sec. capacity of the second pipe line. It is said that the capacity of the first

crete has been so successful for so long, or has been more thoroughly investigated by the leading engineers of the United States, Canada and many foreign countries.

Steel Cylinder and Steel Cage Manufacture

Illustrations (Figs. 13 to 17) disclose the operations required to trim, weld and roll the steel cylinders; weld the steel joint rings to the steel cylinders, roll the steel joint rings and test the steel in every cylinder to 24,000 p.s.i. under internal hydrostatic pressure using steel displacement tubes to minimize the water required to make the test; this takes only a few minutes.

All the welds are made by the submerged method with flux to avoid oxidation or burning of the steel. Three steel sheets of the required length and width for the 48 and 54-in. pipe are welded at two seams, and then rolled to the required diameter, Fig. 15. The closing welds of the steel cylinders are made with boom-welders; also by the submerged method as shown in Fig. 16. Testing of the steel cylinders can be seen in Fig. 18.

The manufacture of the steel reinforcement assemblies, commonly called cages, can be seen in Fig. 19; steel rod, delivered in bundles of 600 lb. and in diameters up to one inch, are spiral-wound on these mandrels. Also on the steel cylinders as can be seen in Fig. 20. The longitudinal steel members are welded to the circumferential members, automatically, at all

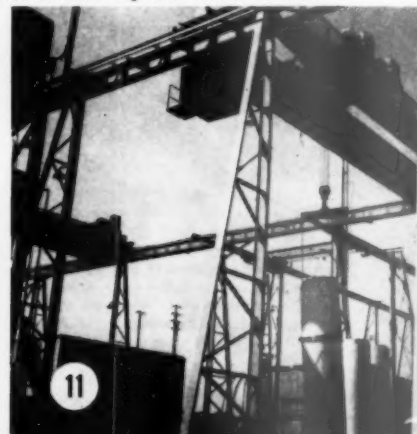
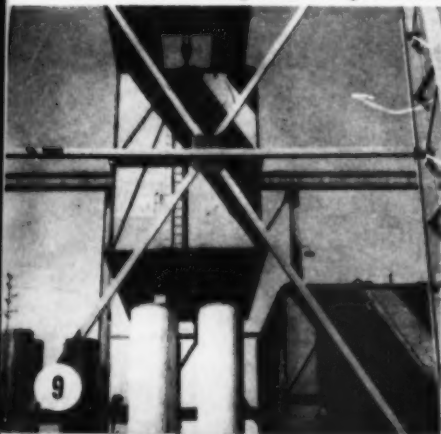


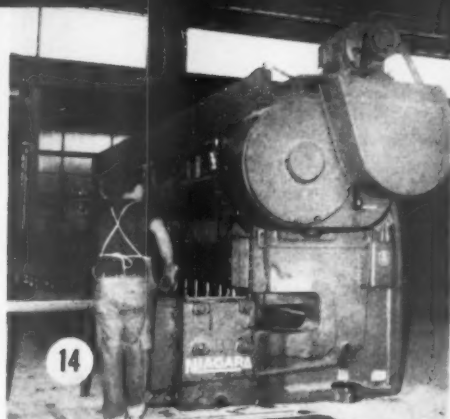
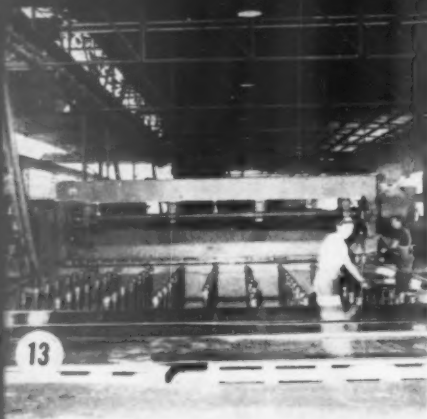
Fig. 12: A 48-in. pipe being laid on timbers

pipe line exceeded the designed capacity by about 20 percent.

This kind of pipe is in reality steel pipe protected with concrete. The steel takes care of all tensile stresses; the concrete resists compressive stresses and protects the steel against oxidation—ordinary rust. The French Academy of Sciences in 1836 first discovered the advantages of cement mortar for protecting cast iron pipe against oxidation or what is called tuberculation caused by active or aggressive waters. No other use of con-

Showing operations immediately after eight pipe are steam-cured for 72 hr., and concrete has a compressive strength of 3500 p.s.i. Fig. 9: Curing boxes being removed. Fig. 10: Cured pipe are 48-in. dia. and 20 ft. long. Fig. 11: Pipe being lifted off base ring to be laid on timbers





Views taken in the steel pipe mill. Fig. 13: Shear feed and take-off table, with stanchions and ball bearing transfers. Fig. 14: Machine which cuts steel sheets to required lengths and widths. Fig. 15: After welding, the steel cylinders are formed on this roller

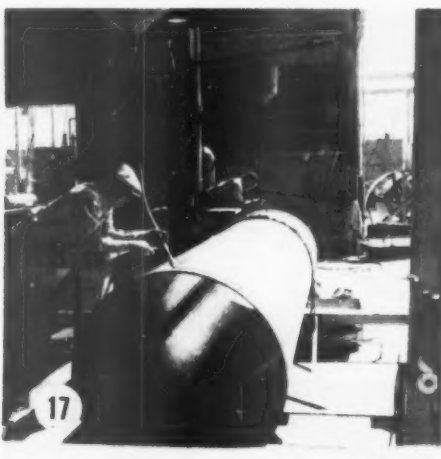
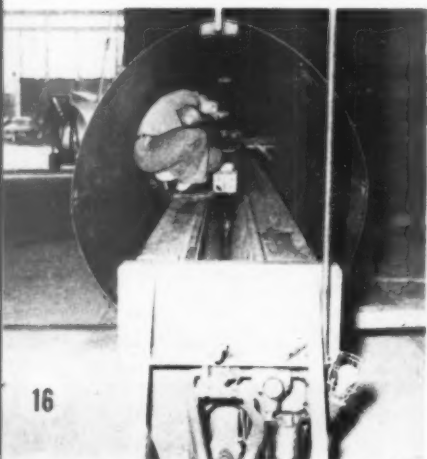


Fig. 16: Closing welds for the steel cylinders are made by the submerged method on this machine. Fig. 17: Steel joint rings are welded to the steel cylinders by this method. Fig. 18: Steel cylinders are tested by internal hydrostatic pressure to check water-tightness of all welds while steel sheets are under a tensile stress of 24,000 p.s.i. Displacement tubes are used and the water is reused

intersections; the finished units are shown in Fig. 21.

The steel cylinders, steel joint rings and steel reinforcement assemblies manufactured by the Basalt Rock Co., Inc., Steel Products Div., are equal to similar work of its kind done anywhere before. Moreover, it takes an organization of skilled steel workers to manufacture this kind of pipe and adequate facilities to do the work. When the site of the concrete pipe mill and the steel pipe mill at Fontana, Calif., was visited in May, 1953, the concrete pipe mill was about 75

percent complete and the steel pipe mill was just underway. Practically all of the machinery, all the buildings and other facilities were actually manufactured by this company at its large steel pipe mills in Napa, Calif. And the mills were also erected and the machinery installed by this company.

Laboratory Control

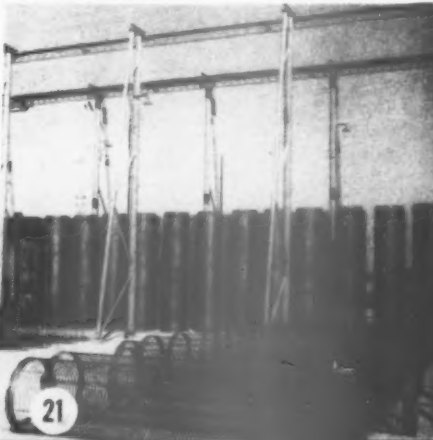
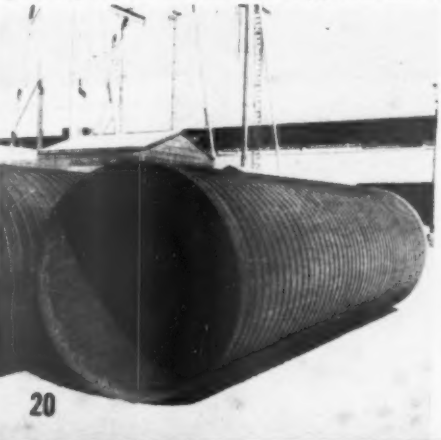
A fully equipped laboratory has been established by the company for testing sand, coarse aggregates, concrete cylinders, the welds of steel

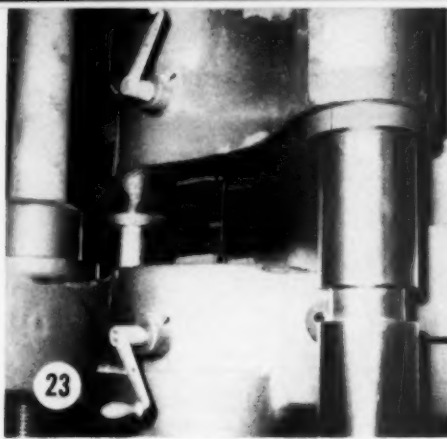
plate and the like at the Fontana, Calif., concrete pipe and steel pipe mills.

In Fig. 22, a company technician and G. B. McArthur, construction inspector, Bureau of Reclamation, are shown testing the weld of a specimen of steel plate, which are made on and taken from one in every 10 steel cylinders; one of the specimens is shown in the testing machine in Fig. 23. Welds seldom fail before the steel plate, when the specimens are tested to ultimate strength.

In Fig. 24, a standard concrete

Fig. 19: Machine for winding steel rod directly on steel cylinders and also for winding steel cages. Fig. 20: Finished steel cylinder, spiral-wound under slight tension. Fig. 21: Bay between steel and concrete pipe mills with overhead electric hoists





Modern testing laboratory equipment. Fig. 22: Testing the weld of a specimen of steel plate. Fig. 23: One of the specimens in testing machine. Fig. 24: Testing a standard concrete cylinder

cylinder is being tested; these cylinders are made of concrete taken from the mixer every day and cured with the pipe in the boxes. The pipe cannot be removed from the steel base rings until the concrete cylinders have attained a compressive strength of 3500 p.s.i. Thus, the laboratory is not only convenient for the inspectors for the Bureau of Reclamation, but it is just as important to the company. The laboratory is just as important as any phase of manufacture of the reinforced concrete pressure pipe. And the two inspectors for the Bureau of Reclamation at the mills are con-

sulted on every phase of manufacture and must approve every pipe before it leaves the mills.

Placing and Consolidating Concrete by Vibration

Looking at the long reinforced concrete pipe, and especially the steel molds in Figs. 7 and 8, you naturally wonder how it is possible to place and consolidate the concrete without separation of the sand, coarse aggregates, cement and water. This art was brought to a high degree of perfection in the manufacture of the re-

inforced concrete pressure pipe for the first pipe line of the San Jacinto-San Vicente Aqueduct from 1945 to 1947.

In the case of the concrete for the pipe for the second pipe line, the slump of the concrete ranges from 2.5 to 3 in.; on account of the high percentage of steel reinforcement required for this pipe, it is impossible to use concrete of a drier consistency. Moreover, by careful vibration there is little if any separation of the materials of the concrete, and this has already been proven many times by testing specimens of concrete taken

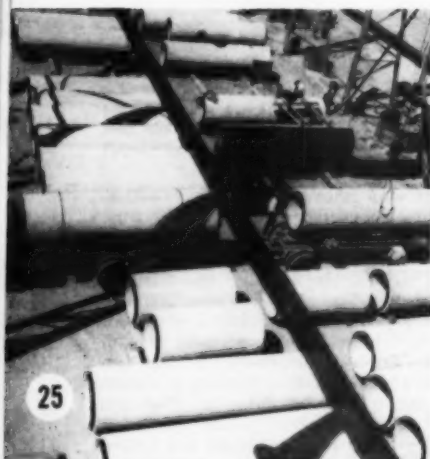


Fig. 25: Loading 48-in. reinforced concrete pressure pipe on a truck and trailer. Fig. 26: Loaded trucks arriving at trench site near Escondido, Calif. Fig. 27: Pipe are unloaded with tractor, fitted with boom, and set near trench in reach of crane

Fig. 28: Crane lowering pipe into trench. Fig. 29: Pipe fitted with round rubber gasket; also paper band about 8-in. wide and two metal strips. Fig. 29-A: Bell end of a 54-in. dia., pipe, 16 ft. long



from the lower and upper sections of pipe. The compressive strength of the concrete is about the same at any place; besides, by vibration the concrete is worked under and around the steel cages and excellent bond strength of the concrete to the steel reinforcement is assured.

Transportation and Installation of Pipe

The Keith Williams Co., Riverside, Calif., has the sub-contract, and the responsibility, for transporting the reinforced concrete pressure pipe from the mill at Fontana to the trench sites, north and south of Escondido, Calif. The steel reinforcement for the pipe varies for every 25-ft. difference in static head, and many of the pipe are made with beveled spigots so the finished pipe lines will fit the subgrades—foundations—and every pipe is numbered. Thus, the transportation of the pipe and locating the several classifications of pipe to the correct positions on the profile is a very complicated and precise venture. This is especially true in the mountainous country, vividly shown in the illustrations.

In Fig. 25 the pipe are being loaded on a truck and trailer, at the mill in Fontana; this takes only a few minutes. In Fig. 26, the trucks are shown alongside the trench near Escondido, Calif. In Fig. 27, the pipe is being lifted off a trailer with a Caterpillar tractor fitted with a crane, and is then moved to a point within reach of the large crane. Here, the responsibility of the Keith Williams Co. ends, and the S. A. Healey Co. takes over.

In Fig. 28, the 48-in., 20-ft. long reinforced concrete pressure pipe is being lowered into the trench—after the foundations have been carefully graded, and the soil compacted to the required density.

Careful construction of reinforced concrete pipe lines is just as important as any phase of design or manufacture; unless the lower-halves of the pipe lines are provided with uniform supports, structural defects may develop after they are placed in service. This is also true of pipe lines of any kind—cast iron, steel, or pre-stressed concrete.

Thus, the detailed requirements for constructing the second pipe line of the San Jacinto-San Vicente Aqueduct are sound and correct, because they are based on many years of practical experience. Every requirement set up in the specifications has to be complied with and the contractor is compensated, under the specifications, for constructing the pipe lines and making the joints right.

Pipe Line Construction Requirements

The annular spaces at the joints, inside and outside of the pipe lines, must be filled with cement mortar to

prevent oxidation of the steel joint rings, when the pipe lines are placed in service. After the pipe lines are stabilized and backfilled, the annular spaces around the periphery of every joint—inside of the pipe lines—are pointed with cement mortar of a rather dry consistency so as to provide a smooth inner surface at the joints to minimize friction loss.

The annular spaces at the joints on the external surfaces of the pipe lines are filled with cement grout of a "creamy" consistency. In Fig. 29 can be seen the round rubber gasket, also a paper band about 8 in. wide and two metal strips. The paper bands are secured around every joint, when the pipe are installed in the trench, with the two strips of metal tape, as shown in Fig. 30. The portable mortar-mixing and placing machine shown to the right, is forcing the mortar under slight pressure into the annular spaces at the top of the joint, to one side. The cement grout displaces the air around the periphery of the joint and thus fills the annular spaces. The water for this machine is taken from the 3-in. dia. aluminum pipe lines, which can be seen at the left. The workman in the foreground of Fig. 30 is white-washing the paper bands on the upper-half of each joint, to minimize the absorption of solar heat and minimize the cracking of the cement grout before the pipe lines are backfilled. A finished joint is shown in Fig. 31.

Because the finished pipe lines are tested under full working pressure for water-tightness of the joints, and the leakage cannot exceed 50 gal. of water per inch of pipe diameter per mile in 24 hr., it is absolutely necessary for the contractor to make every joint carefully. Otherwise, it would be necessary to reconstruct the pipe lines or repair the leaky joints at great expense to the contractor. This is the primary reason why all phases of pipe manufacture, transportation and installation are of equal importance.

Because every pipe must be provided with a firm, but slightly yielding embedment to provide a uniform support for the lower-half of every pipe line, the soil must be consolidated with pneumatic compaction or by saturation and vibration. The latter is more practical, less expensive and by far more effective. Besides, less space is required on each side of the pipe line, as provided in the specifications of the Bureau of Reclamation.

In Fig. 32 an air compressor is

Fig. 30: Machine for making joints. Fig. 31: Annular spaces around outside of every joint are filled with cement grout, and paper bands, secured to the joints with metal tape, are used. Fig. 32: Lower half of pipe is provided with uniform support by saturating soil and consolidating by vibration. Illustration shows air compressor drawn by tractor fitted with boom which supports water jets and internal vibrators. Fig. 33: Close-up showing how soil is saturated and vibrated



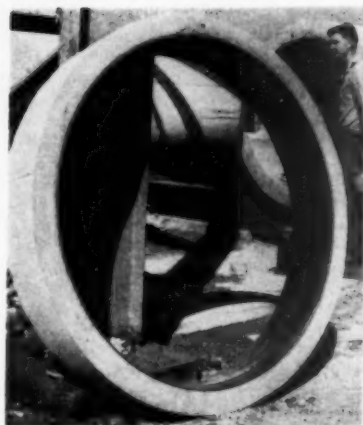


Fig. 38: Double-bell ring used at the low point of a siphon so that pipe lines can be laid with the bells upgrade

shown, drawn by a Caterpillar tractor fitted with a boom which supports the water jets and internal vibrators. In Fig. 33 can be seen how the soil is saturated and vibrated under the lower-half of every pipe; this is a fast and very effective operation and is of major importance. Water for the jets to saturate the soil is taken from the 3-in. dia. aluminum pipe lines, already mentioned; source of this water is from the first pipe line of the San Jacinto-San Vicente Aqueduct, nearby. These aluminum pipe are 20 ft. long.

Foundations for the pipe line, consolidating the embedments by saturation and vibration, are all accomplished over these steep grades, including the 30 percent grades of the siphons, Fig. 1-A. Where unstable foundations are encountered, as shown in Fig. 34 taken in September, 1953, near Escondido, they are stabilized with crushed stone ballast, after the soupy-soil due to irrigation is removed.

All in all, the care exercised in the bedding and backfilling of the reinforced concrete pressure pipe for the second pipe line of the San Jacinto-San Vicente Aqueduct is in the public interest. Unless the work is done right at the outset, maintenance costs are always high. This is especially true of the pipe lines constructed on steep gradients; also in sections of the line where the water table is high due to irrigation and in these cases the foundations for the pipe lines must be stabilized with crushed stone ballast or by other means.

Precast Manhole Structures

When and if it may be necessary to dewater the aqueduct for one reason or the other, provision is made in the low points of the lines for man-

hole sleeve nozzles and blow-off sleeve nozzles as shown in Fig. 35. Because none were erected, which had not been backfilled, when I was over the line in September, 1953, Figs. 36 and 37 show the manhole units at the mill of the Basalt Rock Co., Inc., Steel Products Division, Fontana, Calif. The double-bell ring, shown in Fig. 38, is used at the low point of a siphon, so the pipe lines can be laid with the bells upgrade and closures are made at the high points where static heads are at the minimum.

Dispersing Agent for Raw Cement Slurries

VICTOR CHEMICAL WORKS, Chicago, Ill., has announced through a new bulletin that use of sodium tripolyphosphate is increasing production substantially for wet-process cement manufacturers.

According to the company, results have been confirmed in a modern wet-process cement plant where addition of only 110 lb. (0.1 percent) of Tri-poly to 55 tons of dry clay made it possible to reduce the moisture content of the slurry 10 to 15 percent and resulted in a 7 percent increase in production, or from 2140 up to 2300 bbl. per day.

The results of laboratory tests, and of studies on raw cement slurries from plants in various parts of the country, have been correlated by the company's technical research staff. Technical bulletin, No. VI-53, entitled "The Application of Victor Polyphosphates in the Cement Industry," is available from the company at 141 W. Jackson Blvd., Chicago 4, Ill.

Lime Burning Capacity

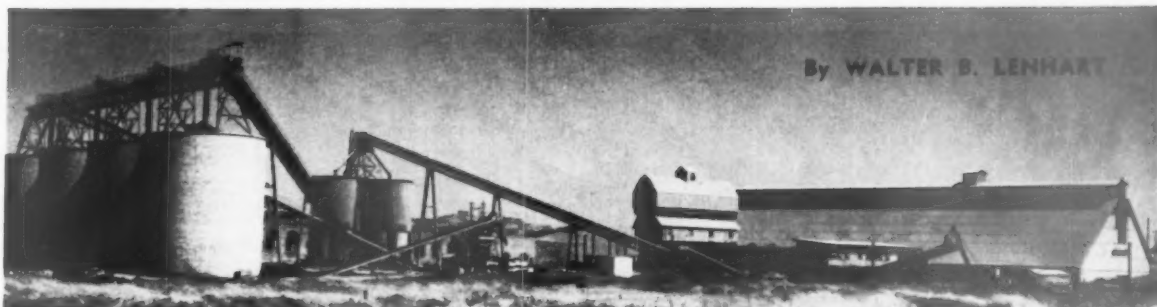
DESPITE THE DOWNWARD TREND of the past several years in the number of lime plants operating in the United States, the annual lime burning capacity increased from 8,600,000 tons in June, 1952, to 9,200,000 tons in June, 1953, as recently reported in *Limeographa*. Lime production in June, 1953, amounted to about 711,000 tons which, based on the capacity estimate, indicates the U.S. lime industry is operating at about 92½ percent of capacity.

Agstone Plant

AN AGRICULTURAL LIMESTONE PLANT has been opened near Parker, Penn., by Elmer and Charles Snyder, Cowansville, Penn. In addition to agstone, the plant will produce stone for highway and building purposes. The plant will have an annual payroll of about \$100,000 and will employ 25 men.

Calcium Chloride Uses

THE CALCIUM CHLORIDE INSTITUTE has announced publication of its Brief CB-5 on "Calcium Chloride with Air-Entrained Concrete." The pamphlet is available from the institute at 909 Ring Building, 18th and M Sts., N. W., Washington 6, D. C.



By WALTER B. LENHART

Overall view of new Basalite lightweight aggregate plant. Left to right: Finished material silos, slaking tanks beyond, kiln feed building and raw material storage

Producing Surface-Coated Lightweight Aggregate

DURING THE 1952-1953 PERIOD Basalt Rock Co., Inc., built a new artificial lightweight aggregate plant at Napa Junction, about 6 miles south of Napa, Calif.

The product manufactured at this plant is physically almost identical with the expanded shale made at Ventura, named Rocklite, which is coming into increasing use as a concrete aggregate.

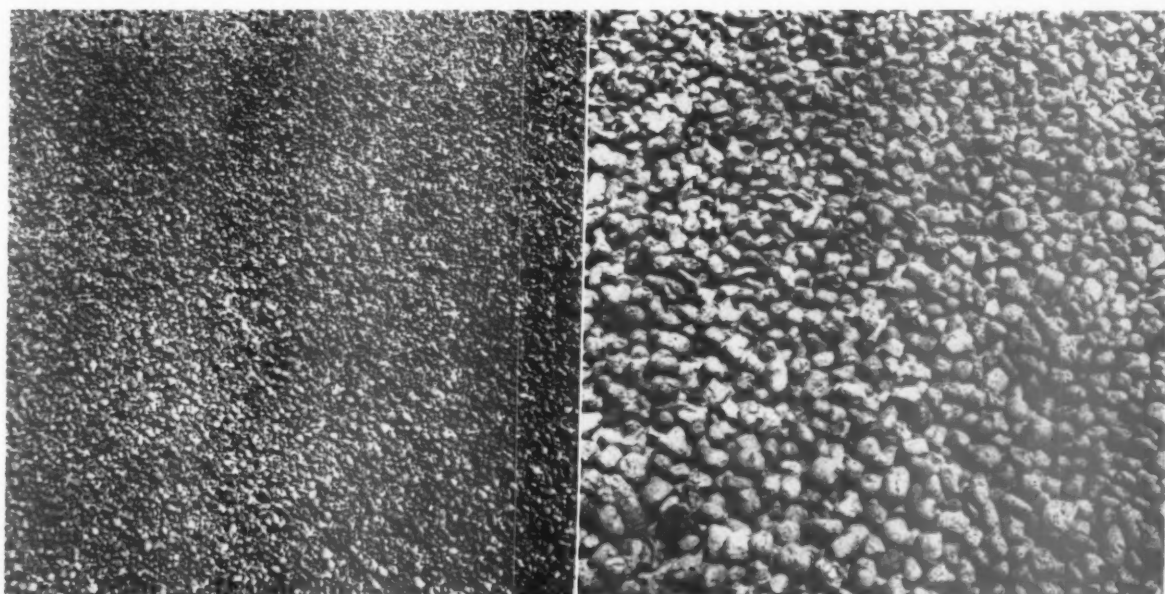
Steps In Calcination

"Basalite Expanded Shale" is the name that has been selected for the product from the new Napa Junction plant. As the calcining techniques are very similar for both products, a description of the manufacturing operations will be confined to the newer plant.

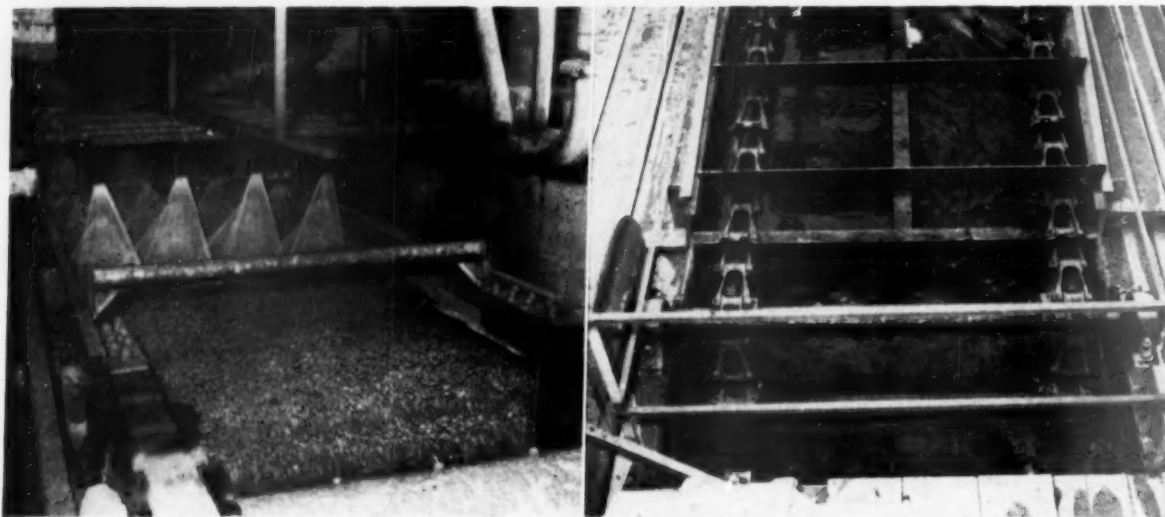
Shale calcined in four rotary kilns with product treated for free lime removal to produce "Basalite" aggregate with unique properties

A screen-graded shale, calcined to incipient fusion in rotary kilns, is used in the manufacture of Basalite Expanded Shale. Its dominating characteristic is the almost spherical shape of the finished material with its hard, water-tight, outer protective skin. The interior of each sphere is vesicular, being made up of an infinite number of small cells which are independent of each other; i.e., each has its own

shell. Four sizes of material are made, (sand, $\frac{1}{8}$ in., $\frac{3}{8}$ in., and $\frac{1}{2}$ in.). The 8- x 125-ft. kilns are equipped for oil or gas firing. As the material passes through the kiln, three distinct zones are encountered by the sized grain; first is the preheating zone, second is the hot zone, and the third is the firing zone. As the grain progressively move through and out of the hot zone the material reaches incipient fusion of the outer shell. At almost the same time the interior begins to release gases causing each grain to expand. The gases stem from the chemical composition of the shale including organic matter. During this incipient stage the grain is rolling with the rotation of the kiln. This constant rolling seems to pack the surface grains into a closely knit



Close-up of both fine and coarse expanded shale aggregate. Note rounded shape and water-tight, outer protective coating of aggregate pieces.



Left: Slaked material is washed over this 4- x 16-ft. single-deck vibrating screen. Right: Fines passing the screen cloth ($\frac{1}{8}$ -in. mesh) of the washing screen for slaked material are fed to this sand drag. Recovered sand is conveyed into one of the finished material silos. Fines overflow to a sump from which water is reclaimed

and water-tight film, leaving the interior a mass of cells. During this incipient fusion stage, the particle goes into the end zone that is somewhat cooler than the hot zone although this zone is at the firing end of the kiln. In this zone the packing of the skin surface is complete and any agglomerated groups of particles tend to break into identities of their own. At this period in the calcination life the mass is a mixture of a lesser amount of almost red-hot particles along with a larger mass of darker spheres. Any agglomerated lumps in the end product seem to tend to disintegrate on reasonable impact and thus release the spherical particles.

Advantages In Concrete

The spherical shape of the particles when used in concrete permits easier

placement, the continuous outer seal resists the ingress of water, and it allows for a more efficient use of cement. There is no suction action that pulls cement paste into the interior of the grain in which the strengthening elements of the paste are thereby lost. The spherical-shaped aggregate is hard and tough and, when used with portland cement, strengths are comparable with conventional aggregates indicating that the material has pozzolanic values. The material does not air slack, can be stored indefinitely in open piles or in bins without degradation of any kind.

At the Napa Junction plant there are four 8- x 125-ft. Vulcan rotary kilns with room provided for four more. Natural gas is the normal fuel, however, equipment is available to permit oil-firing. The kilns operate through a vari-drive motor at from 1.5 to 2.8 r.p.m. The slope of the kilns is $\frac{1}{2}$ -in. per lineal foot and the travel time through a kiln is in the 45-min. range. The finer the feed, the faster the kiln is rotated. Firing temperatures are from 1700 to 1900 deg. F. with the range depending on the diameter of the feed.

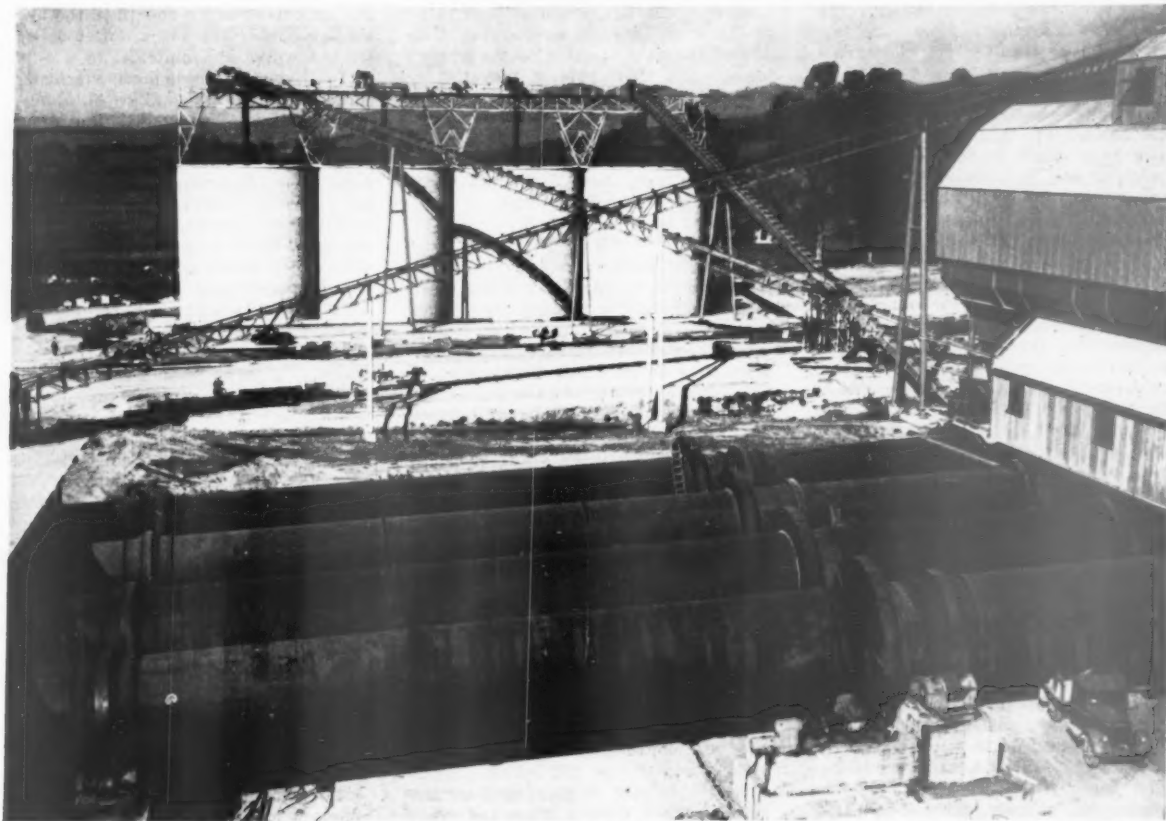
Natural gas is used to fire the four kilns with oil as optional fuel

There are four sizes of raw shale fed to the kilns with each kiln receiving its separate size of feed. The raw sizes are: $\frac{1}{4}$ -in. to $\frac{3}{8}$ -in.; $\frac{3}{8}$ -in. to $\frac{1}{2}$ -in.; $\frac{1}{2}$ -in. to minus $\frac{3}{4}$ -in.; and minus $\frac{3}{4}$ -in. (sand).

Hydrate All Free Lime

The dominant feature of this new operation is the use of slaking towers or silos to completely hydrate any free lime in the finished products. Raw shale in the deposit contains a few very small veinlets of limestone (calcium carbonate) which is converted in the kilns to lime or calcium oxide. This reaction will take place in any kiln or sintering machine at the normal operating temperatures. The presence of one-half (or less) percent of free lime in concrete may, or may not, be harmful. It is one of those technicalities that is tossed pro and con by concrete technologists, but Mr. Streblow, in his insistence on taking no chances with quality factors, determined that the free lime must be eliminated so that no one could ever raise the point. Therefore at the Napa Junction plant, the four sizes of calcined material, after passing continuously through the coolers, are recombined and sent to one of three slaking silos. Here the calcined product is submerged in water for a minimum time of 24 hr. This is ample time for the fast-slaking lime in the clinker to be completely hydrated. Simultaneously with the hydrating, the particles disintegrate to a fine powder (hydrate lime), and are later screened out and eliminated entirely from the finished product. This is probably one of the first artificial lightweight aggregate plants in the United States to water-soak its kiln product, for the purpose of getting a better aggregate by eliminating lime. The finished material is high in silica; in the 61 percent range.





Separated sizes of shale are fed to each of the four rotary kilns. Feed end building is on right; finished material silos are in background

Aluminum oxide runs about 24 percent.

Processing Operations

At Napa Junction six steps in processing are involved: (1) mining and transportation of the raw shale; (2) crushing in hammermills and screening to get the four sizes of raw shale previously enumerated, all of which are stored under cover; (3) calcination and collection of dust from each kiln; (4) cooling, followed by conveyor or belt transportation to the slaking silos for hydration of the free lime; (5) preliminary re-screening of the calcined product from the slaking silos where a sand fraction is taken out and ultimately recovered in a sand drag, with the coarser fraction going to screens over the finish silos; and (6) storage of finished material and shipping facilities.

Selection of the Napa Junction site for the new operation was based on several considerations. It is on an important highway over which each day a large number of trucks owned by the Basalt Rock Co. transport concrete aggregates and concrete masonry units to the great metropolitan areas that make up the East San Francisco Bay area. Under this setup, many of the trucks will be able to carry a pay-load in two directions; (a) to the consumer and (b) on the

return trip pick up a load of Basalite Expanded Shale and haul it to the block, or the casting plant, at Napa. The Napa Junction site is alongside tracks of the Southern Pacific railroad so that car shipments can be made to the company's Stockton plant, and to other users. The site also has available a large supply of fresh water for use in the dust collecting system, the coolers, and in the slaking silos, and it is only a 2-mile haul from the shale mining operations to the new plant.

Adequate fresh water is assured as the site was once occupied by the plant of the Standard Portland Cement Co. Operations ceased about 25 years ago, but the quarries are now full of fresh water. Two 500-g.p.m. pumps, each with a 40-hp. motor, deliver water from one of these lakes to the plant under a 200-ft. head. Other sections of the old quarry operations provide excellent disposal areas for waste products.

Shale loaded by draglines into trucks at the pit is hauled to the plant and dumped into a truck hopper under which are two 24-in. x 16-ft. Link-Belt apron feeders serving a 36-in. inclined belt conveyor that delivers the shale to a 36- x 40-in. Dixie, moving-grate, hammermill powered by a 150-hp. motor. The crusher is set for a nominal 1½-in. discharge product

which falls to a 30-in. conveyor belt on which it is delivered to a 4- x 16-ft. Symons single-deck vibrating screen, operated dry. The deck has ¾-in. wire with the plus fraction returned by belt conveyor to the hammermill. Later, a second 36- x 40-in. Dixie hammermill will be installed. It will receive the plus fraction from the screen (plus ¾-in. minus 1½-in.). This hammermill, set to deliver a minus ¾-in. product, will operate in closed circuit with the screen. The first mill may then be opened up some. The finished product from this section of the plant is then moved by a 30-in. belt conveyor to the raw screening and storage section. This belt is 415-ft. centers and uses a 25-hp. motor.

With annual rainfall of about 30 in. in the Napa Valley, all finished raw material is stored under cover in a large corrugated iron and steel structure. The raw crushing plant and related facilities are of adequate capacity to take care of the plant's normal output and to also build up sufficient dry, finished raw material to offset the rainy days. However, if necessary, wet material can be calcined but at obvious economic disadvantages. The screening plant is mounted in a gallery over the under-cover storage area. There are three Symons single-deck vibrating screens mounted in a single row. The first is 4- x 16-ft. and has

BASALT ROCK

$\frac{1}{8}$ -in. wire cloth. Sand falls to the pile below. A short 24-in. inclined belt conveyor receives the plus fraction and delivers it to a 4- x 12-ft. vibrating screen with $\frac{3}{8}$ -in. wire mesh. Here again the throughs fall to the pile below. The plus $\frac{3}{8}$ -in. fraction falls to a short 24-in. inclined belt conveyor and is delivered to a 4- x 8-ft. vibrating screen with $\frac{3}{16}$ -in. wire mesh with the throughs falling to a stockpile. The plus fraction is received by a third 24-in. short inclined belt conveyor where the material is delivered to a stockpile without screening for it is already a minus $\frac{3}{8}$ -in. product. The four stockpiles below are on 80-ft. centers and 40 ft. high, and each contains roughly 2420 cu. yd. of material. The stockpiles are not separated by any dividing wall although this may be done later. Space has been provided for five such stockpiles.

Paralleling the storage area and slightly below its ground level is a long 30-in. flat running belt conveyor. Front end loaders or other types of loaders reclaim the sized material to this belt. When the screening plant is in operation, finished sizes can be chuted direct to this belt. This belt, which has a total length of 835 ft., is driven by a 15-hp. motor. It delivers to a 24-in. inclined belt conveyor, 462-ft. centers, which discharges to a 30-in. shuttle belt 72 ft. long, mounted over the four steel kiln feed bins. The inclined belt conveyor to the shuttle has a 20-hp. drive. The longer belts on the raw side are provided with revolving brush cleaners.

Kiln feed bins are hopper-shaped, and under each is an 18-in. x 14-ft. Link-Belt apron feeder driven by a U.S. Gear Vari-speed motor. Each hopper is also provided with a Syntron vibrator to insure no hang-ups. U.S. Gear motors are used on the conveyors with the belts riding on

Link-Belt idlers. Control of feed rate to the kilns is done by varying the size of the gate opening to the apron feeders and their rate of travel.

At the end of each kiln is a rotary barrel cooler. These tubes, approximately 50 ft. long and 6 ft. in diameter, discharge the partially cooled aggregate onto belt conveyors that carry it to the slaking silos.

Slaking Towers

The long inclined belt conveyor to the slaking tower discharges to a steel chute serving the slaking silos. The silos are of steel supported on heavy concrete footings. There are three silos, each 28-ft. 4½-in. inside diameter, with a cylindrical section 32 ft. 6 in. high, with a cone-shaped bottom that is an additional 17 ft. 7 in. high. Each silo holds 1230 cu. yd. which is sufficient capacity for a 24-hr. kiln output. They are designed so that 10 ft. of additional height can be imposed at the top to provide ample capacity for an 8-kiln plant in any future expansions. Should future operations require it, steam can be introduced to speed up the slaking process. In such an event, the slaking silos would then be covered. The cycle of slaking operations is to have one silo being filled; a second slaking; and a third withdrawing. Emptying a silo will be roughly an 8-hr. operation.

At the bottom of the coned section of each silo is a 14-in. diameter outlet controlled by a Grigsby pinch valve. This valve consists of a long heavy rubber sleeve with a heavy clamp assembly to control the rate of unloading from the silo. Most of the material in the silo is readily flushed out by the accompanying slaking water in the tank, but to insure a trouble-free emptying operation, three heavy water sprays are mounted in

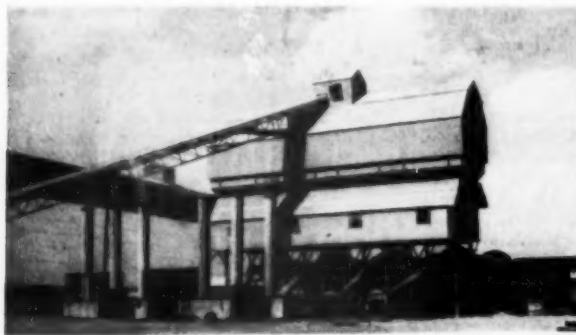
the tank itself and a fourth in the unloading chute. The 14-in. outlet delivers the water and material to a 4- x 16-ft. Symons single-deck vibrating screen mounted in a shallow pit alongside the silos. This screen has $\frac{1}{2}$ -in. wire mesh. The minus fraction flows to a 25 ft. long by 6 ft. Link-Belt sand drag. Recovered sand goes by belt conveyor direct to its finished storage silo. The minus material from the drag flows to a rectangular concrete sump where additional fines can be recovered and water reclaimed. This fine material may have value as an agricultural soil conditioner, with the alkaline water helping to neutralize the acid waters in the dust collectors.

The plus $\frac{1}{2}$ -in. material from the Symons screen falls to a 24-in. inclined belt conveyor that delivers the material to screens mounted over the storage silos. Here the set-up is somewhat similar to the screen assembly in the raw section, however, only two screens are necessary. Both are 4- x 8-ft. and Symons single deck units. The first screen takes out the $\frac{1}{2}$ -in. to $\frac{3}{4}$ -in. which drops to its silo. A short 24-in. inclined belt picks up the plus fraction, and delivers it to the screen which sizes the $\frac{3}{4}$ in. to $1\frac{1}{2}$ in. fraction and a third short inclined 24-in. belt conveyor delivers the top size ($1\frac{1}{2}$ in. to $3\frac{1}{2}$ in.) direct to its silo without screening.

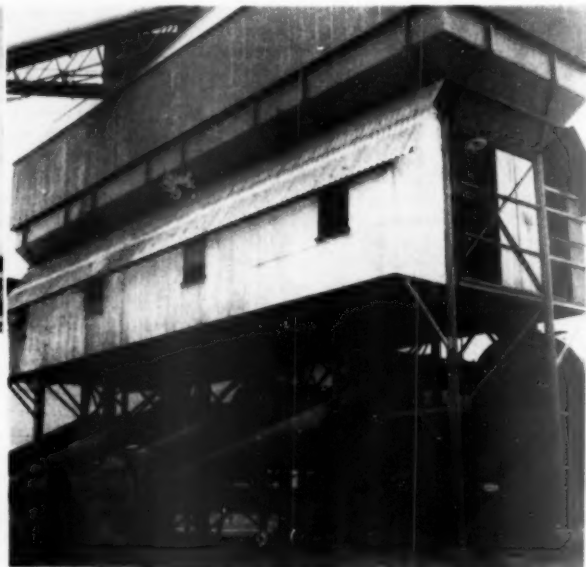
The four silos are arranged in a single row, and the coarser size flows down a stone ladder into its bin. The stone ladders, which rest on the bottom of the silo, are made of large diameter pipe designed so that as the silo fills, the material flows into the bin with a minimum of vertical fall.

Silos are constructed of Strescrete. The individual units are precision ground with no mortar used at the

(Continued on page 149)



Above: View of feed end of plant showing belt conveyor for raw material and hydraulic-type dust collectors



Right: Individual fan exhausters serve each rotary kiln. The fans deliver the hot gases to a dust-collecting system, consisting of pockets with internal baffles on which water sprays impinge

PROSPECTIVE CHEMISTRY of Cement and Concrete

By NATHAN C. ROCKWOOD

Part IX. More about the structure of water and its effects on silicates

CONTINUING THE DISCUSSION of the effects of water that always is retained in cement and concrete, from the article in our August 1953 issue, we will attempt to present an unproven theory to explain why this water, in excess of the very minimum actually required to hydrate the cement, becomes a cause for deterioration of the concrete. In fact the water of hydration itself can result only in relatively weak hydroxyl bonds.

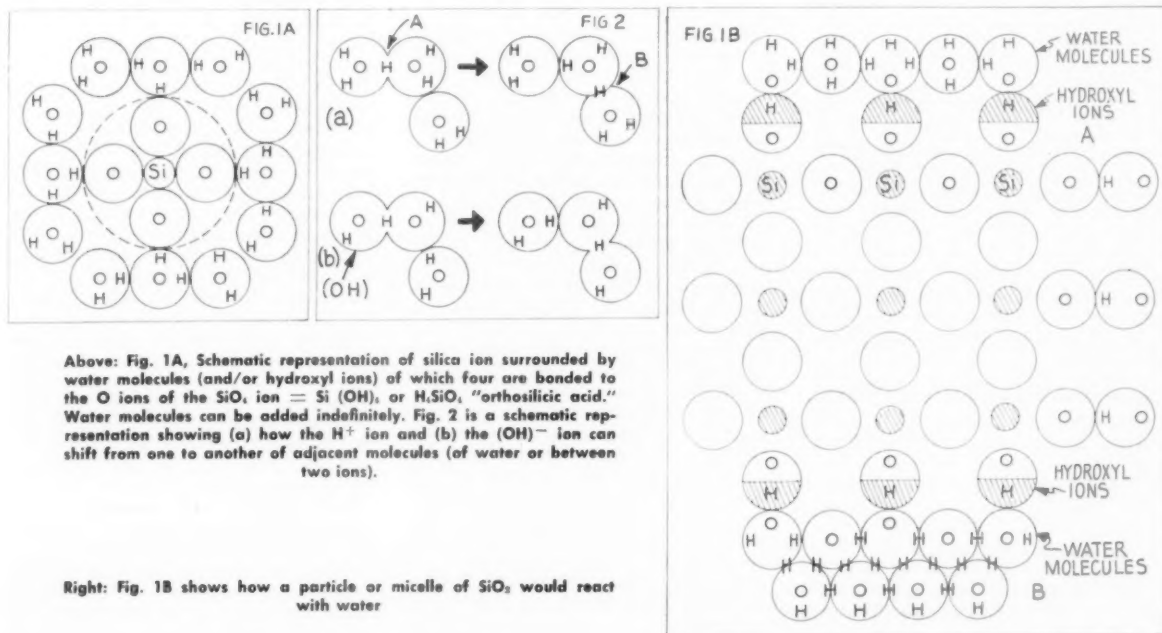
If the mechanistic idea of the hydration of cement clinker is anything like that we have presented in previous discussions (September 1952), the primary function of the water added to the pulverized clinker is chiefly to "explode" the lime ions or colloids (as the case may be) imbedded in the silicate lattice, thus converting the CaO to Ca(OH)_2 and in doing so expanding and releasing it from the three-dimensional lattices of silica and alumina. At the same time, it shatters the silica and alumina lattices into ions or colloids of SiO_2 and Al_2O_3 . These particles of silica and alumina also become "hydrated" in the manner described in what follows.

It will be recalled that the lattices

of SiO_2 and Al_2O_3 (the chemical formulas for silica and alumina) are primarily made up of packed oxygen (O) ions, coordinated or arranged in a geometrical pattern, in a special way, depending on the size and valency of the central (positive) cation. In lime the Ca ion is thus six coordinated with the oxygen ions (that is, each calcium (Ca) ion is surrounded and bonded to six oxygen (O) ions; in silica each silicon (Si) ion is four coordinated, or bonded, to four O ions. Hence, the bond strength of Ca to any one O is one-sixth of two (the valency of Ca) or $\frac{1}{3}$, and the bond strength of Si with a valency of four to any one O is one, or three times stronger than the CaO bond. However, in the September 1952 issue, Part III of this series, according to Dr. Robert H. Bogue, a recent researcher in Europe, M. A. Bredig, has suggested that in portland cement clinker the Ca ion is coordinated with eight O ions, and that adding water releases the Ca from the two extra O ions, and forms Ca(OH)_2 , where Ca is six coordinated with OH ions, which corresponds to CaO , in ordinary lime and is more stable at ordinary temperatures than the eight co-

ordination that exists in clinker. The temporary CaO bonds in the clinker were brought about by the high heat and the fact that the SiO_2 ions have greater bonding power (the electrons are more agitated, or the silica more "acid") at the high temperatures of the kiln.

With the silica-alumina lattice broken up into ions or colloids, and with the ions or colloids of Ca or Ca(OH)_2 scattered through it, the newly hydrated mixture becomes the hydrated calcium silicates and aluminates of portland cement paste. The fragments of the silica and alumina lattice, with their surfaces of unsatisfied O ions, are of course negatively charged, and the positively charged ions (cations) of Ca, Na, K, etc. are readily bonded into it. The O ions (anions) of SiO_2 also readily bond to themselves ions of OH (hydroxyl) or molecules of water (H_2O), the positive or H ends or sides of these ions or molecules, bonding to the negatively charged O with what are called hydroxyl bonds. The calcium (positively charged) ends or sides of the Ca(OH)_2 colloids or molecules will similarly attach themselves or become bonded to the silica and alumina,



which on aging again tends to form a new lattice or network (the cement gel). These become then the hydrated calcium silicates and aluminates of the set and hardened cement, but the bonds are now Si-O-H-O-Ca or Si-($\frac{OH}{OH}$)-Ca, instead of the Si-O-Ca bonds that were formed at high temperature and exist in the clinker until hydrated. The (OH) or hydroxyl bonds are not particularly good ones in any mineral substance because they are readily released by a positively charged ion or molecule in solution, or in some instances by heat.

The accompanying Fig. 1 illustrates what is meant by a hydrated silica ion, or a silica solution (or sol) in water (a so-called silicic acid). The fresh or clean surfaces of single SiO₂ ions have four negative charges of static electricity to utilize for ionic bonds, or the four oxygen ions are receptive to one more electron each to complete or fill their outer electron orbits (valency electrons). In other words, these four unsatisfied oxygen ions can form four bonds with some other atom, ion or molecule which can give up an electron to each oxygen ion or can share an electron with it. It must be remembered that in an ionic or electrical bond, as between Ca and O in CaO, the ions do not have over-lapping electron orbits, and neither atom shares electrons in common, and that the attraction or bond between the two elements is caused by the mutual attraction of oppositely charged particles. Where the two elements share electrons in common, or the outer electron orbits overlap, we have a valence (homopolar) bond, which is the stronger of the two kinds. In the case of SiO₂, since only one-half of the total possible oxygen negative charge has been developed, or one electron is still lacking in the outer orbit of each O ion, the bond between Si and O is not purely ionic; it has been estimated by experimental methods to be about 50 percent ionic and 50 percent valence; in other words the outer orbits of electrons in the ions are so close together that the electron from the silicon atom given up to each oxygen ion (that is, its attractive force) is still partly shared by the nuclei of both elements. Very few bonds in minerals in general are believed to be purely ionic or purely valence types, but combinations of the two.

Combined Water Attracts Water

Referring now to Figs. 1A and 1B, a silica ion or a silica particle of any size cannot exist in the atmosphere or in water without immediately bonding to itself four molecules of water or moisture. The illustration is purely schematic, since the O and Si ions in silica are arranged in the form of a three-dimension tetrahedron, and the water molecules, or OH ions, are actually attached to the silica tetra-

hedron in a geometric pattern. The layer of water immediately around the SiO₂ ion is firmly held—it is to all practical purposes “combined water.” This water has been hydrolized by the relatively strong negative electrical charge on the silica or silicate particle and the attached ion is the OH part of the water molecule H₂O. One H ion, now only the positively charged nucleus (or the positively charged hydrogen ion) serves as the connecting link. The other hydrogen ion, released when the OH ion of the H₂O becomes bonded to the oxygen part of the SiO₂ ion, is more or less free, and it is these roving H ions in the solution or sol that provides the H concentration which makes the solution or sol an acid (H₂SiO₃)—a silicic acid. These free H ions also have an attraction for more water molecules or they form bonds between water molecules so that even a single ion or colloidal particle of silica (SiO₂ or SiO₂ colloid) builds up layers of moisture several times the thickness of the innermost bonded layer. In heating and drying out silica or silicates, the outermost layers of the water are most easily driven off, and the inner ones with increasing difficulty, but even the innermost one of “chemically bonded” water, the one with the OH to O bond, often can be driven off without destroying the silica lattice, since it is adsorbed water rather than lattice water. Evidently as the water goes out it takes some of the O ions of the silica ion SiO₂ with it, and the Si atoms then join up to form the silica lattices (where one O ion is bonded between and to two silicon atoms) of the silicates of the various minerals.

However, heating or drying is not necessary, because mere standing or aging causes the silica sol to squeeze out some of the excess water between the SiO₂ ions (syneresis) and thus form aggregates or micelles, which eventually join up to form the chains and sheets of silicates. The difficulty from the angle of the concrete maker is that gels can be formed in this way which apparently are firm solids, and yet retain many times more molecules of water than ions of silica or alumina. Some of this water is firmly bonded to the linings of the pores in the interior of the silicate structure, as we have described, and some (the greater part) is in turn merely bonded to this innermost water layer. The inner water layers are, in most cases, so strongly bonded that they have lost some of the characteristics of water; it has considerably less volume for one thing. Probably it can not be frozen under ordinary conditions, because it has already attained a crystalline structure. The amount of water retained in the gel, initially, of course depends on the amount of water available when the set or gellation

begins. The more water, the more porous is the set or hardened gel; and the more porous the more of what might be called the secondary water, is held in the pores, because they have been formed of larger size on account of the original excess of water.

Fig. 2, based on a A. F. Wells “Structural Inorganic Chemistry”¹⁰ gives an explanation of how water and hydroxyl bonds are formed between molecules of water. This explains why the OH or H₂O innermost water film on a SiO₂ ion or an SiO₂ particle readily builds up, when moisture is available, to an appreciable thickness. To quote Wells: “Each water molecule tends to surround itself tetrahedrally [a tetrahedron is a four-sided pyramid each face and the base being an equilateral triangle.—The Editor] with four neighbors, and although in water regular arrangement extends only over comparatively small groups of molecules and for a given group persists only for a short time, in ice this tetrahedral coordination extends throughout the whole crystal. This theory of the structure of water suggests an explanation of the extraordinary mobility of the H⁺ and OH⁻ ions. . . . Calculations show that very little energy is required to remove a proton [the H⁺] from one water molecule, to which it is attached as (H₂O)⁺ to another, for the states H₂O, H₂O⁺ → H₂O, H₂O have the same energy. If we assume that the H⁺ ion acts as a bond between two molecules, then the process shown diagrammatically in the sketch [our Fig. 2a] results in the movement of H⁺ from A to B. The analogous mechanism for the effective movement of OH⁻ ions through water is illustrated in b [Fig. 2]. Whereas other ions move bodily through water, the H⁺ and OH⁻ ions move by what Bernal terms a kind of relay race, small shifts of protons only being necessary.”

Referring again to Fig. 1 it can be readily seen how this theory of the structure of water can account for the buildup of water layers on the silica ion, or a particle of silica, such as would result from the breaking down of the silicate lattice in the hydration of a particle of cement clinker. In an hydrated particle of cement both the silica and the calcium hydroxide particles, whether they are ions or micelles, water layers surround each, and the bonds between them are initially OH or water bonds. With the drying out, or by syneresis, the silica ions can join up to form the silicate lattice, with or without the Ca(OH)₂ or Ca becoming an integral part of that lattice. Whether the Ca ions are actually a part of the lattice or merely fill in the otherwise vacant interstices of the silicate lattice remains to be determined, but the fact that the Ca or CaO or

¹⁰Oxford University Press, Great Britain, 1947.

Ca(OH)₂ may nearly all be dissolved out, and the silicate lattice left intact, would make it appear that the Ca is not a necessary part of the primary lattice structure. What has been said about silica of course applies also to the alumina, with the limitations on the alumina part of the lattice (AlO₂) described in previous articles, because the element aluminum has a valence of only three against the four for silicon, a silicate structure containing

AlO₂ must be supplemented to obtain neutrality by the addition of other cations (positively charged ions, such as sodium or potassium).

It should be emphasized that what we have speculated about in the preceding paragraphs has not been established experimentally, but nevertheless is sound theory or reasoning if one accepts the results of recent research on silicate structures other than cement.

Expanded Lightweight Aggregates

(Continued from page 146)

joints but the cores are filled with concrete. Circumferential reinforcing is provided on every 7½ in. of height. At higher points the number of rods steps down to two rods and eventually to one rod. Vertical rods are on 24-in. centers. The silos are 50 ft. 5½ in. inside diameter and 60 ft. 2 in. high, and hold 4462 cu. yd. each.

Reclaiming is to a 30-in. belt conveyor that operates in a tunnel under the silos. Six openings under each silo have quadrant-type gates so that material can be drawn to the belt from the six openings simultaneously if desired. The basic idea here is that material within each bin can be recombined and this method of withdrawal serves as an anti-segregation device. One air cylinder controls six gates. A railroad switch into the plant is provided with a car loading tippie for the finished products. Four truck loading bins are also provided.

Dust Collector

To make the plant dust-free, the company has provided a fan exhaustor at the feed end of each kiln. This fan picks up the hot gases and delivers them to a specially designed dust collecting system. For each kiln there are four rectangular concrete pockets. These pockets are 6 ft. 9 in. wide, 6 ft. high and 3 ft. long. The 16 pockets are cast in a concrete monolithic structure. A multiplicity of corrugated heavy steel baffles are set in each pocket. Water sprays play on these baffles. The fan causes the flow of hot gases to progressively impinge against the vertical face of the baffles and to change the direction of flow. They operate quite efficiently as dust collectors. Waste water is pumped to one of the disposal areas.

The effluent gases from the kilns contain a small amount of sulphur dioxide which, in the presence of water and air, tends to form sulphuric acid. In the kiln dust this acid can react with the iron content of the calcined product to form ferric sulphate. With the acid and/or ferric sulphate there is some corrosion of metal surfaces due to the effluent water from this system, however, lime-saturated waters from the reclaiming pits reduce this corrosion to a minor factor.

Basalite Expanded Shale in structural concrete can produce concrete

weighing 85 lb. per cu. ft. and 2500 p.s.i. strengths with the weight varying with the amount of sand used. With a four-bag mix, 2000-lb. concrete is obtained and 6000-lb. concrete with an 8-bag mix. With special mix designs, using vibration and low slumps, a 5-bag mix will produce concrete in the 3200 to 3500 p.s.i. ranges.

Annual Gypsum Production

THE BUREAU OF MINES recently released its final annual figures on the 1952 production of gypsum and gypsum products. According to the report, activity in the gypsum industry was generally lower in 1952 than in 1951, as shown by the 3 percent decrease in the quantity of domestic crude mined and a decline of 8 percent in the tonnage of calcined gypsum produced. However, many of the decreases were principally concentrated in the first quarter, when housing starts were at a low point. Some improvement was noted in the second and third quarters, while the fourth quarter evidenced record sales of several gypsum products.

Record sales were reported in 1952 for wallboard, agricultural gypsum and sanded plaster. The principal gain for agricultural gypsum (and gypsite) was registered in California. The increase of sanded plaster sales was due to the inclusion of perlite premixed plaster in that category.

The output of crude gypsum from mines in the United States exceeded 8,000,000 tons for the third consecu-

tive year. A total of 56 mines, located in 19 states, reported production during the year; of these, 40 were open-pit operations, 13 were underground mines, and three were combination pit-underground mines.

Producers reported stocks of crude gypsum totaling 1,688,757 short tons on hand December 31, 1952, compared to 1,547,005 tons on hand at the end of 1951, and 1,496,105 tons at the end of 1950.

Imports of crude gypsum into the United States in 1952 declined 11 percent from the 1951 figure. Canada supplied 91 percent of the total quantity imported. Imports declined from every foreign source except Jamaica, which exported to the United States about 60 percent more than in the preceding year. Imports from the Dominican Republic were lower, although there were indications that it would become an important supplier in the near future.

Gypsum and gypsum products, sold or used in the United States in 1952, as compared with 1951, were reported by the Bureau of Mines as shown in the table below.

Sensitivity of Explosives to Static Electricity

THE BUREAU OF MINES has announced publication of Report of Investigations 5002, on "Sensitivity of Explosives to Initiation by Electrostatic Discharges." The report is a revision of an earlier one, now out of print, that resulted from an investigation of electrostatic hazards in the manufacture, storage and use of explosives. The original investigation was begun in 1942. The apparatus for routine testing of explosives was redesigned and rebuilt in 1948, to make testing explosives safer and more convenient, and the rebuilt apparatus is described in the report. Besides explaining the principles of the testing method used and describing the Bureau's apparatus and experimental procedures, the report presents the results of representative tests on a considerable number of explosives.

Uses	Short Tons	
	1952	1951
Crude gypsum:		
Mined	8,415,300	8,665,534
Imported	3,067,905	3,486,927
Calcined gypsum	6,874,432	7,454,916
Uncalcined:		
Portland-cement retarder	1,815,489	1,808,766
Agricultural gypsum	866,005	687,620
Other uses	24,233	33,993
Industrial:		
Plate-glass and terra-cotta plasters	48,587	63,371
Pottery plasters	43,991	48,365
Orthopedic and dental plasters	11,017	11,297
Other industrial uses	148,621	165,680
Building:		
Plasters:		
Base-coat	1,907,871	2,170,299
Sanded	177,679	124,504
To mixing plants	11,703	16,345
Gaging and molding	176,957	208,422
Prepared finishes	16,000	18,323
Other	220,997	246,124
Keene's cement	52,591	54,031
Prefabricated:		
Lath	1,757,771	2,118,804
Wallboard and laminated board	2,964,381	2,842,537
Sheathing board	123,310	122,907
Tile	157,451	218,603

Progress in Technical As Observed in

By WALTER B. LENHART



Left, above: New York Thruway is a fine example of concrete highway construction. Below: Turner Turnpike in Oklahoma, showing Tulsa toll gate

IN TRAVELS extending over the past 100 weeks, the writer has spanned the continent from coast to coast for two complete round trips and also from border to border. Short jaunts into Canada and old Mexico were included. The travel was mostly by automobile, however, trains, boats, airplanes also were used.

To travel continuously for 100 weeks and to sustain a personal interest, we have always felt that one should have a goal or primary "project" to shoot at. In the 1951-52 period "durability of concrete" was one primary goal and in pursuit of it we inspected during one year alone, 68 important dams in the nation; mostly in the West. For the 1952 era, we had depletion as the primary object.

Depletion Factors

There are almost an infinite number of variations to the causes behind a profitable operation and a non-profitable one. In spanning the nation several times, this theme is hampered home time after time. A fraction of the non-profitable operations are due to such factors as poor management and inexperience. Most of them, however hinge on matters that are beyond the direct control of the owners. Changes in the transportation picture can deplete an operation. Changes in specifications, especially those that eliminate a type of aggregate, can be based on the whim or fancy of an individual. The general practice of blaming the aggregates for all structural failures where actual causes of failure may involve technical and scientific reasoning beyond the mental scope of those interested; this can end the life of a deposit. Zoning, to exclude noise,

blasting vibration, dust, movement of high capacity trucks can (and have) made added investments so large that it becomes unprofitable to combat the cause of depletion. A quarry may become depleted because of depth for here hoisting or transportation becomes a creeping cost figure. Depth can mean more water to pump; new strata of rock to penetrate that can upset the plant's processing technique. The increase of stripping costs is another factor. Growth of a city so as to encompass an operation may result in depletion. Zoning in many instances was the factor, but in others the adjoining land became so valuable for industrial purposes that the operator could not afford to pay the asking price so he could expand laterally. Technological advancements in the actual processing of rock can upset the competitive picture and jeopardize operations.

We ran into several interesting variations to this general theme, and, as the first two instances ended somewhat disastrously for the people concerned, (one in the East; one in the West), the general subject might be explored before advancing too far.

One operator built a new plant and started processing sand and gravel. The bank was a relatively consolidated material that almost had to be blasted to permit the use of a shovel. The material was densely packed, and though exposed for ages, it had the property of "progressive disintegration." The sand produced was typical of the total. When first processed the sand (as an illustration) had 3 percent minus 200 mesh. In a week it was 5 percent. In three weeks 8 percent, and as time moved on the sand ran as high as 38 percent minus 200. This

operator has a problem with no easy solution in sight.

The second was a quarry. A large strata of stone reacted somewhat along the lines of the sand above mentioned. It was slower. Before opening up the property the owners core drilled it, and tested the cores by conventional methods. However, on exposure to the air for a month or more, particle dispersion was apparent.

A third contemplated going into the manufacture of lightweight aggregates. He had the raw material and the money to go ahead. The raw material made an excellent looking lightweight aggregate with all favorable properties, except that on standing the material slaked like lime. It took about three months for the reaction to show itself. The operator was fortunate that he noted this property of the finished material before his investment got out of bounds. Another artificial lightweight aggregate manufacturer was not so fortunate. The raw material formed a glassy slag over the top of the moving bed of material so that heat transfer was practically impossible. He wound up with a bucketful of dirt shot through with a handful of globules of glass. Lack of technical information was apparent. Having observed the mining operations in Montana, Arizona, Utah, Nevada, Colorado and the iron ranges of the Mesabi continue operations for decades, it is this writer's studied opinion that the rock products industries can put up a better case for percentage depletion than most segments of mining and mineral processing.

Toll Roads

Our travels over the country showed the rock products industries to be

Developments Field Travel

Pensacola Dam is a recently completed structure in western Oklahoma



healthy. The demands in most cases were abnormal so that operations had to be conducted on two or more shifts. Prices generally remained firm with a few isolated instances of price cutting, but these only for short time periods. There appears to be no real prospect for letdown in sight for the year ahead even though farm prices have suffered enough to cause some uneasiness. The reactions have not in any sense affected the rock products industries overall, for construction is behind schedule, especially highway construction, and the feeling among producers is that heavy construction for the years ahead will take up the slack from reduced sales in other fields. Especially was this true in areas where toll roads were being constructed, or in the advanced planning stages.

There appear to be two principal national deficiencies that need attention, the schools and the highways. All seem to be conscious of the needs but no one seems to want to spend the money. To raise taxes is a problem so the highway builders have hit on the toll road as the answer. The people who ride the toll roads scream to high heaven if the gas or wheel tax is raised a penny, but they seem to be willing to pay the equivalent of

a 20 to 30 percent per gallon tax to ride the toll roads.

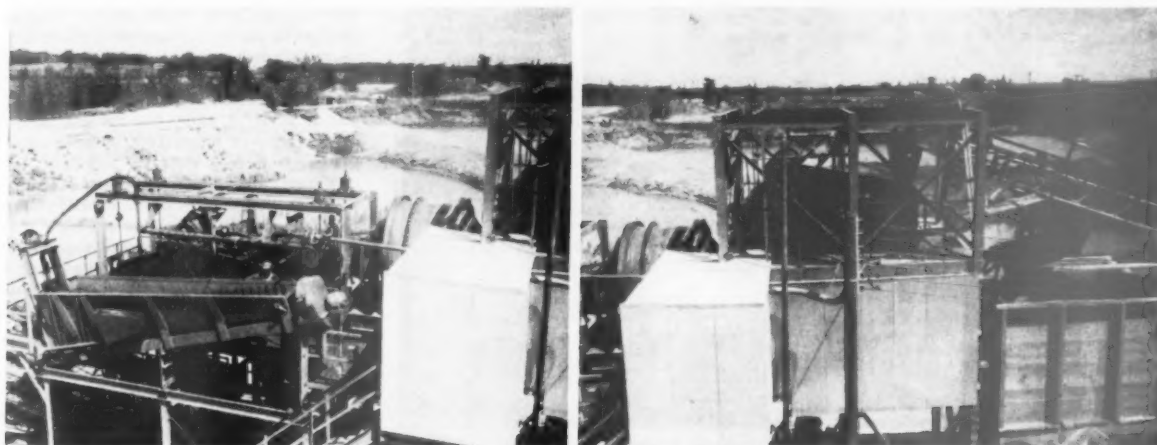
We had a two-fold interest in the New York Thruway for we wanted to see what effect an accelerated construction program would have on established producers in the area, and to see first hand the tremendous amount of equipment that is working on the project; to get the "feel" of what such roads meant to the country as a whole. Would portables, or new producers move into the area; would prices be cut—these were of general interest. It can be said in brief that the construction of the Thruway had little adverse effect on the producers. Portables played a minor role and no new plants were built specifically to supply the accelerated requirements. In the Buffalo area, a few had to install added fine crushing equipment, because in that section of the Thruway, a two-layer construction technique was practiced so that more fine sizes of aggregate were necessary for the concrete pavement. By advance planning, the contractors had permitted suppliers of aggregate to stockpile during the slower construction months so that supplies were on hand for the rush periods. Portland cement was hard to get, and this delayed other types of construction.

With the completion of the Thruway, cement production will continue high for at least a year to take care of construction items that lagged during 1953 for want of cement.

The Thruway is of concrete construction using crushed stone for the most part, especially at its eastern end. Gravel must have 75 percent crushed particles to meet New York specifications.

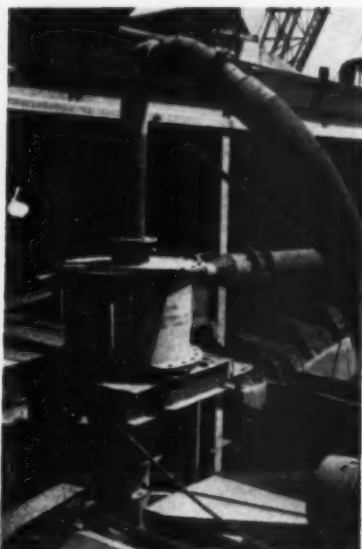
The method of financing is still under discussion but it seems that New York's 4,000,000 (estimated) registered vehicles will be permitted to purchase a special \$10 license plate that will allow them unlimited use of the Thruway for a year. Non-holders and out-of-state cars will be charged one cent per mile for passenger cars and for 4-wheeled light trucks; an average of 3.3¢ per mile for heavier trucks, for buses 3.5¢. The Thruway is roughly 500 miles long. It is expected to be ready for use by the end of 1954. It will have no stop lights along its entire length.

There are many miles of toll roads under consideration in the United States. These range from connecting Canadian points with the United



Side view of heavy media separation plant at Owatonna Aggregates Corp., to remove deleterious material from sand and gravel. Illustrations show screens, separatory drum and densifier

TECHNICAL DEVELOPMENTS



A 24-in. Whirlcone installation at Cooley Gravel Co., Denver, Colo., recovers finer sizes of sand

States, including one to practically parallel the Mississippi river from Canada to New Orleans.

Power Resources

During the second half of this travel period the subject of power—future power for the United States began to loom upon the horizon. This thought was mainly stimulated by some statistics developed by United States Bureau of Reclamation. The substance of this study revolves about the theme of "Where is our power coming from in 1975." This is only 21 years from now.

The Bureau estimates that by 1975

the population of the United States will be 193,000,000 of which 80,000,000 will represent the "working force." In 1950 there were 48,160,441 people living in the 22 western states; by 1975 a population of 70,000,000 is estimated. By 1975 it is believed that the West will use 8500 kw.h. per person and 7500 kw.h. will be needed per person for the nation. In 1924 the nation used 455 kw.h. and in 1951 it was 2888. This, for the West (22 states) adds up to an estimated 550 billion kw.h. annually in energy requirements.

It is believed that by 1975, unless unforeseen oil and natural gas discoveries are made, that oil and gas will be too expensive except for standby purposes. This discounts possibilities of atomic energy, a subject we will discuss later.

This brings up the subject of gasoline for vehicles for if diesel oil is too costly for industrial use in 1975, what about gasoline? Here again the West has one answer; its oil shale deposits. At Rifle, in north central Colorado are high bluffs of oil-bearing shales that literally blanket much of Colorado, Wyoming and Idaho. In places these bluffs are a mile high. A band some 500 ft. thick is said to contain more oil than the world has used since the dawn of time. Mining operations for the future are visualized with a single plant mining 250,000 tons per day. Here, in the future, will be rock products mining operations that transcend anything on this earth for the so-called oil shale is essentially an oil impregnated limestone, and other than its oil properties, resembles most of our limestones. Experimental underground quarry operations have been carried on at Rifle

for years with low-cost features that can be studied by all producers.

Heavy Media Separation

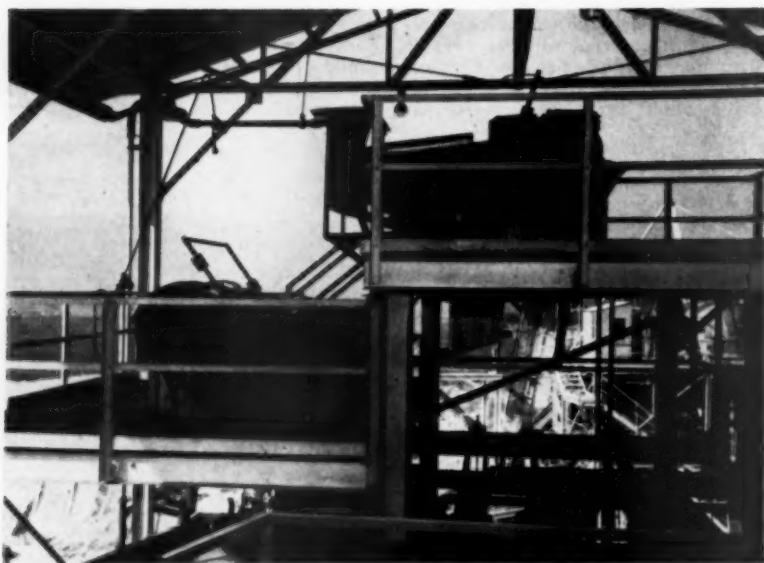
In reviewing the changes and trends in the rock products industries, we find many indications pointing to new horizons and opportunities for those that are keeping up with the times. The heavy media separation process has taken a firm hold. During the past year three complete articles on the H.M.S. process were published in *ROCK PRODUCTS*; two applications in gravel operations and one in crushed stone. They appeared in the February, April, and July, 1953 issues. A heavy media plant is soon to go into operation in the Mid-West on gravel, and another on gypsum, and a third on gravel in Ohio. River gravel producers, such as those on the Ohio, have been dredging there for years, digging to relatively shallow depths. The washings and debris from the older diggings were dumped back on top of deeper beds of gravel. These bars or beds are not unlimited although they are often unseen. Dredge operators are faced with the problem of digging deeper, and this means re-handling the waste material on top of the good. River producers are studying what H.M.S. can do to help solve this situation.

If a producer has a substance in his aggregate that has a higher or lower sp. gr. than the wanted aggregate, and this difference is .10 sp. gr. or more, the heavy media process can make a separation.

Two of the heavy media plants that went into operation in the gravel industry were intended primarily to remove soft stone. These softer particles were of less sp. gr. than the bulk of the material. In California, however, there seems to be a trend to lower the specifications respecting "soft" inclusions.

The size range of feed amenable to H.M.S. has expanded to 10 in. for the top size and to 28 mesh on the fine size. In 1945 there was a total of 19 plants in operation, now there are several hundred and the yearly tonnage is close to 55,000,000 tons for all industries. The user of H.M.S. pay a small royalty for its use based on the tons of marketed material. For gravel it is less than 2¢ per ton.

There are possibilities of H.M.S. removing clay balls economically. Clay balls probably will have enough difference in sp. gr. to be separated from gravel, but the amount of media clinging to the clay (and lost) is the big question. However, we believe that when the full value of H.M.S. becomes more apparent to the rock products industries, the cost of media will be lowered from around \$40 per ton (and higher) to a few dollars per ton. One of the media used is magnetite and there are sand operations in every area of the United States where mag-



At the Natividad, Calif., operations of Kaiser Aluminum & Chemical Corp., an undesirable friable granite is removed from dolomite by heavy media separation. The illustration shows two magnetic separators removing media from entrained fines with the scavenger unit below



Heavy media installation on dredge operated by Keystone Division, Dravo Corp.

netite is present in the sand. The so-called "black sands" are mostly magnetite. Nature has already ground them sufficiently fine for H.M.S. needs. A bank of spiral units or a few concentrating tables can recover the magnetite in crude form for a matter of cents per ton. The coal industry uses H.M.S. to process some millions of tons annually. Some sands carry as high as 6 percent or more of black sands. A bank of 10 spirals would cost around \$6000, and could handle about 15 t.p.h. of feed. If only one percent of black sand was recovered from the feed material, that would be 300 lb. per hr., which would treat 300 t.p.h. of gravel. Thus the aggregate producer would be able to cut his costs materially; even sell magnetite to other users.

Flotation for Industrial Sand

Flotation of the "heavies" from industrial sands to lower the iron content has progressed to a high degree. Reports are available where producers of glass sand have lowered the iron content to as low as .015 percent iron with .02 percent being nearer the average. The key to a low iron content hinges on the thorough scrubbing of the silica grain to free it of clay and oxide coatings. Once the particle is clean, froth flotation does the rest. A sufficient number of commercial applications, along with test work in flotation laboratories has demon-

strated that froth flotation in the silica industry is here to stay. No patents are involved; no secret processes; the machines have been used in other fields for 40 years or more. Reagent costs are the highest cost items.

If the iron content of a sand is due to magnetite, ilmenite and similar "heavies," and it is desired to get it in the .03 range the use of jigs might be considered. Jigs are "the forgotten tool" for many millmen.

Attrition Machines

The thorough scrubbing of a silica grain brings up the subject of attrition machines for doing the job. During the year, several attrition machines were observed in action scouring sand; one was scouring pumice grains to free them from a sticky clay. Incidentally, the washing of pumice for concrete aggregate use was a 1953 "first." The attrition machines have been very successful and practical, and one manufacturer is planning on having a laboratory model on display at the coming sand and gravel conventions in Chicago in February, 1954.

The trend in the processing of sand has been towards the recovery of more fines. When one talks of "fines" in sand, it can mean from minus 100 mesh downward to still finer sizes. The "Sand Equivalent Test" discussed in the January, 1952, issue (page 93),

has not been adopted beyond the land of its birth—California. The test, in essence, means that all sand whether for asphalt or concrete must be washed. Washing can mean loss of fines. Many operators are finding that their deposits are deficient in fines. If the deposit does not contain the needed fines, then fine grinding equipment may have to be installed. An operator in California, and one in Colorado put in ball mills to get added fines. One in New Jersey contemplates a ball mill installation for the same reason. One old established crushed stone producer in Pennsylvania installed a rod mill to manufacture sand, and one in Arizona plans a rod mill installation to make sand out of cobbles. Generally speaking and in its broadest sense, if one wishes to manufacture concrete sand from a coarse feed, a rod mill may be advisable. If fines are to be gotten from a relative fine feed, then a ball mill may be the answer. By coarse feed we are thinking in terms of $\frac{1}{2}$ in. to 3 in.; by fine feed we are thinking of minus $\frac{1}{4}$ in. Either type of installation is relatively costly to install. Either can grind wet or dry.

Liquid Cyclones

The next step is the recovery of the fines, whether it be from natural deposits, or manufactured. More settling area in the conventional dewatering equipment may be one an-

TECHNICAL DEVELOPMENTS



A portable batching plant with elevating tower for concrete has been found an effective tool in supplying concrete at isolated locations

swer, however, clay may settle there also. The use of liquid cyclones of various types have been put into use during the past year, and in 30 out of 40 cases have done a good job. Failures can be traced to an improper understanding of how the unit functions.

"Liquid Cyclones" is a term applied to small collectors that resemble a conventional dust collector but these operate wet. Thin pulps carrying the finer sizes of sand are pumped tangentially into the units. This sets up a highly centrifugal action in the cyclone. The coarser sand (or the heavier) work to the outside, and are ejected at the cone outlet in a pulp having 70 to 75 percent solids. These fines then can usually be blended into current production. In the conventional types only about 2 t.p.h. of finished sand can come out of the small outlet, so if 5 t.p.h. is pumped into the unit, only the coarsest is recovered. The answer lies in a study of the tonnage going into the unit; if high, get more units.

A second type of liquid cyclone was described in connection with a portland cement operation, in *ROCK PRODUCTS*, July, 1953, page 62. The units were installed to receive the discharge from a ball mill (or tube mill), remove the oversize and return it to the ball mill and recover the fines for cement kiln feed. It was receiving a thick pulp and making the separation very successfully. The manufacturers of the same liquid cyclone recently placed on the market a two-stage liquid cyclone that is designed for fine sand recovery purposes. The unit sells for less than \$1000. By two-staging, repulping displaces any residual clay and the secondary treatment makes an effective operation.

Another manufacturer has placed a liquid cyclone on the market that is

designed to sell for around \$1500. It is specifically designed for the sand operator. One of the important findings was that as the diameter of the liquid cyclone decreased, the fineness of classification increased, so a liquid cyclone has been developed that is about 5 in. long and has an internal diameter of only 0.59 in. These tiny units are cast in blocks of either rubber or Bakelite with each block containing 24 to 112 separate cyclones. In actual practice, a 3-in. diameter up to a 24-in. diameter liquid cyclone recovers all the plus 325-mesh material, and the small units take out material in the minus 325-mesh range down to 2 micron sizes. For degritting whiting (finely ground calcium carbonate-limestone) and degritting clay, the units have found worthwhile applications. In the work with degritting whiting, three-stage multiple units were used. The overflow from the first

stage is the feed to the second stage; the overflow from the second is the feed to the third, and the overflow from the third is the final effluent. The underflow from the first bank is the one that is removed from the system with the other two underflows recycled. They operate under pressures up to 100 p.s.i. or more.

One operator on the West Coast experimented with liquid cyclones as a means of removing organics from fine sand. The organics were wood fragments that seemed to cling to the sand. Results of the work may be forthcoming. At Garrison dam, on the Missouri river, organics in the form of lignite coal were objectionable—or at least they thought the coal was objectionable, but tests proved otherwise so they are using sand that gives a No. 4 A.S.T.M. color chart. The data were covered in *ROCK PRODUCTS*, October, 1953, page 86.

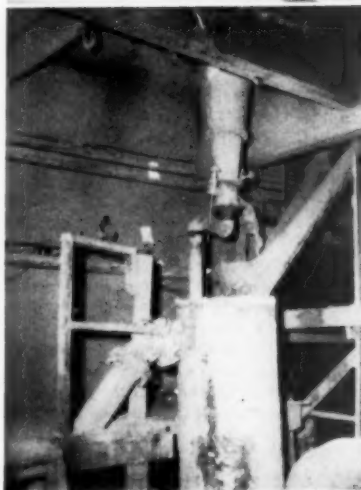
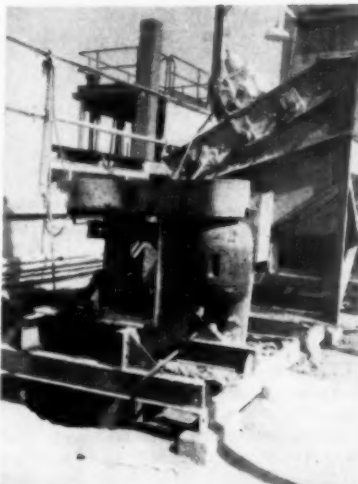
Other Methods

Hindered settling devices of various kinds have found applications. They range from a three-spigot discharge to eight or more spigots and their use adds flexibility to an operation where gradation of the sand is important. Most of this type of units have to have some type of de-watering unit following it. Dewatering units of the screw type seem to find more wide usage than those of the rake type.

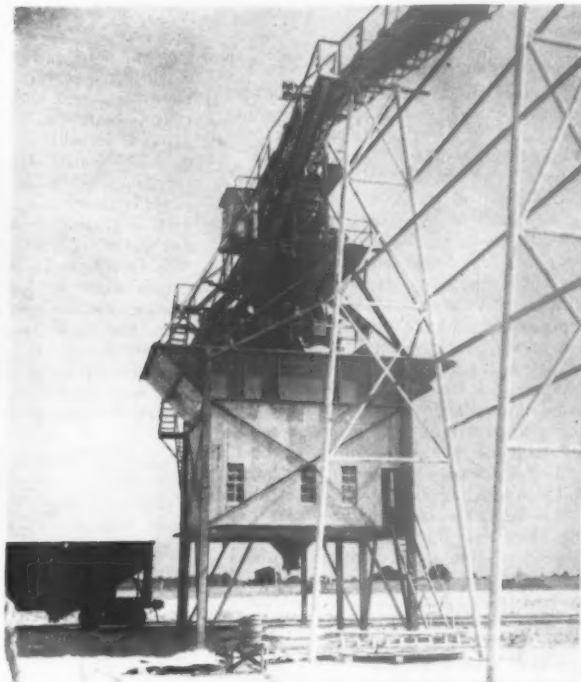
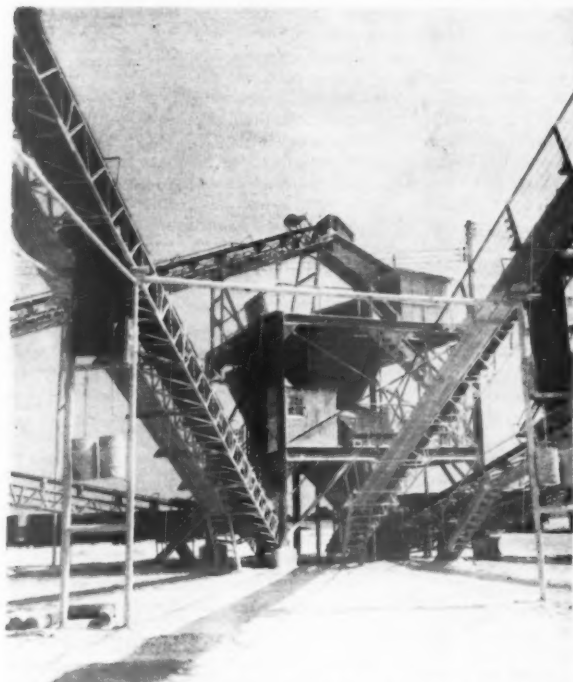
Heated screens for dry screening have found several satisfactory applications. They operate on material mostly in the 20- to 40-mesh range. The heat supplied is not sufficient to actually dry the material, but it does help prevent screen blinding and gives a sharper size separation. Agstone plants particularly find the heated screens advantageous. Some of these plants had to practically shut down during rainy days. Now they operate continuously. Some, in addition, add spray water to the rock following the primary, or secondary crushers or both. The water used is impregnated with chemical wetting compounds so that the liquid literally sinks into the fine rock pores. Thus most of the dust is prevented from forming. Many crushed stone plants are using the wetting compound. This type of wetting has no effect on the heated screen operations. The k.w.h. necessary to heat the screen is small.

Lightweight Aggregates

Artificial lightweight aggregate plants have occupied the spotlight in many sections of the county. Probably one of the most outstanding is the one at Napa Junction, Calif., which is described elsewhere in this issue. A prominent and old time sand producer, operating on the Ohio river, went into the manufacture of artificial lightweight material. This plant was described in the September, 1953, issue, page 71. New plants have been built



Liquid cyclone installation at Southwestern Portland Cement Co., Victorville, Calif. An increase of 30 percent in raw grinding production made possible with these units and a change from open to closed-circuit grinding



Fort Worth Sand and Gravel Co., started a new quarry and crushing plant operation, using methods found efficient in sand and gravel processing. Illustration, to the left, shows final screening tower and to the right may be seen the loading out facilities

in North and South Dakota, Ohio, Oklahoma, Georgia and one reported in Virginia. A western operator burns (in piles) an oil impregnated diatomaceous earth that is finding uses as a concrete aggregate for lightweight materials. Perlite and exfoliated vermiculite are finding steady markets. A new plant in Virginia, processing so-called "Red Dog," went into operation. Red Dog is the material that results when a coal waste dump catches fire. The smouldering action calcines any shales, and similar material in the pile, to a lightweight product that finds acceptance in the shipping areas involved. Two additional plants went into operation to serve the Kansas City markets. One uses 125-ft. rotary kilns, and the other uses the sintering system and a travelling grate. In Denver a sintering plant continues to operate using a circular travelling sintering grate. Most of the plants built seem to lean to rotary kilns.

Screening and Crushing

In some sections of the United States, the subject of noise from a rock products plant occupied the limelight. We believe that in the immediate years ahead this subject will be explored more thoroughly and that processing equipment will be sold on the basis of the number of decibels that a machine produces.

Beside heated screens in the vibrating field, some work has been done on screening under water. This is with reference mostly to screens in

the finer sizes. Surprisingly high capacities per square foot of screen surface have been obtained, it was said. A western operator built a new type of screen that may have repercussions in the wet, fine screening field. Patents are pending on the unit. By fine screening we refer to the 20 to 40 mesh and higher range. This producer is working the kinks out of a rotary-type screen that will also vibrate. In addition, as the screen revolves the revolutions per minute change. The rotations are spasmodic or intermittent and range from 8 up to the 24 r.p.m. range. Lastly, it screens under water. The barrel of the screen is made up of a series of easily replaceable screen sections so that in one unit there can be a multiplicity of screen types and sizes. Many types of screens are being tried that range from conventional to stainless, wedge bar types and other non-clogging screens are being tried. Some of the screens tried cost as high as \$1000 for a conventional piece or roughly \$10 per sq. ft. We hope to publish the results when these tests are completed.

Impact crushers have found a wide range of usefulness. Several plants use them for secondary crushers and some for primary and secondary or both. For secondary work a controllable r.p.m. of the impactor has been found advantageous. One eastern producer completely rebuilt a 50-50 impact crusher, using heavy cast steel members for the housing which was made up in sections that were bolted

together. The main bearings were taken off the housing and put on the base or foundation. He was getting excellent results with the old 50-50, but the new unit was far superior for the particular stone. The diesel drive was removed, and two 300-hp. motors were installed as this operator found that excess horsepower is advantageous. Maintenance wear has been very nominal. One western limestone producer put in one of the larger eccentric-in-head crushers, a 42- x 48-in. machine. Small 18-in. crushers of the gyratory type have been found useful for production of terrazzo materials.

Conveying

Intraplant transportation in practically all of the new plants is by belt conveyors. Moving the primary crusher to the floor of the quarry has become standard practice. We have observed no rock products producer who has yet tried pumping crushed rock out of a deep excavation, along with the water. The system is in use in a metal mine in the Mid-West. This system uses a dual-enclosed chamber; one is filled with crushed rock while the other is being emptied, the chambers discharging to a rising column of water and operate fully automatic. Stone up to 4 in. or more in diameter can be handled and the horsepower required is said to be no more than that required to pump the water from the mine opening. Here, it seems is a possible cost-cutting system to get crushed rock out of a deep excavation (where water is a factor), and at

TECHNICAL DEVELOPMENTS

the same time give the rock a scrubbing.

Portable Plants

Portable plants have been expanded, first to a semi-portable operation, and finally to a "packaged portable or semi-portable permanent plant." Many of the newer plants are simply a collection of units. In many cases the designer of the plant also manufactures most of the units. Most operate without cover while some have small "dog-houses" over the moving equipment. Others are totally enclosed. A packaged plant is quickly assembled and most that we have seen are a credit to the user and to the manufacturer. Some operate over small truck bins. Others have stacker belts fingering out from the plant in addition to truck bins. Reclaiming has been by belt conveyors in tunnels, but front end loaders of heavy designs seem to predominate. One portable plant in the East was purchased with the intent of moving it from plant to plant (the company has several operations), and to re-crush any excess materials on hand. The same company uses another portable for crushing top rock sending rock from the lower strata to the permanent plant. By this procedure, stripping of the top rock need not be too close, for the portable can either remove the little strippings in the blasted stone, or let it go in with the crusher-run-road-base-types of materials. One producer in Pennsylvania has four plants of the portable type, permanently mounted. Impactors, both primary and secondary, are used and agstone and mine dust are important outlets for this operator. It is obvious that portables have a place in the permanent stone producer's operation with virtues that stem from flexibility, high capacity, mobility and low operating costs. Two other portable plants in the crushed stone field were set up in Pennsylvania. Both were packaged deals and both operate dry. After a few months of operation, some seven vibrating screens and more secondary crushing equipment were added in one of these plants. A cone crusher is to be added, and stacker belts installed for all the sizes of material produced.

Three new sand and gravel plants went into operation in New York, two to serve the lower Hudson river valley areas and the third near Rochester.

Practically all of the atomic energy development fields have been visited, and it is astounding the amount of crushed stone and sand and gravel that these projects consume. As some of these jobs run into investments, for the A.E.C., of several billions of dollars, it is a lush field. Other areas that are experiencing greatly expanded construction are the lower Hudson river valley areas, particularly on the west flanks of the river. Dispersion of industries because of the dangers

of atomic or block-buster bombing attacks is an important phase of the movement of industries from the more thickly congested areas. The lower Delaware river area is another section that is booming. This growth is built around the new U.S. steel plant that is under construction north of Philadelphia, and clustering around this basic industry appear to be many new industries related to steel. One authority estimates that \$3,000,000,000 will be spent in the area. With the construction of toll roads aimed at connecting the Pennsylvania Turnpike with the New Jersey Turnpike, and feeders related to both, the rock products industries in that section are doing well and some new plants are slated for the area.

Trucks-Shovels

Producer ownership of trucks appears to be growing. This situation has been apparent in the West for many years. In the Los Angeles area, the huge number of trucks issuing from the gravel areas to the southeast of the city became so great that some towns objected to the heavy traffic. So the local association secretary for the aggregate producers got busy and the result was the construction of a 4-lane highway that is essentially reserved for truck traffic. Earth-moving equipment, including shovels and draglines, seems to be getting larger and larger. Rubber-tired shovels with relatively fast road speeds have been used for blending sand from ground-stored material thereby recombining two or more sizes of stocked material to meet the required specifications. Front end loaders were observed blending fine sand to pit-run material ahead of the primary operation. Conveyors

with motors in the head pulley are in use in some branches of industry.

In two areas, heavier than normal ready-mixed concrete trucks were said to be in operation. In the West and Mid-South, mobile mixers were in use. They are large capacity mixers of conventional design but mounted on rubber tires for easy transportation. Often a tower is a part of the assembly. The technique is to move the portable mixer to the construction site and dry batch to it by conventional trucks. Several of these units were owned by aggregate producers and loaned or rented to the users. The tower folds when on the road. In use it carries a concrete bucket so that multi-storied structures can be poured.

The use of magnetic head pulleys has become standard for crusher protection. Many have found a use for removing iron bearing minerals from silica sands where the sand was used for silica brick manufacture. In this case an iron content in the .05 percent range was permissible. As modern machinery and equipment designs are using new types of metals, many of which are non-magnetic, the use of a metal detector ahead of finer reduction crushers appears almost mandatory. These devices are placed over a belt conveyor serving the crusher. Any piece of metal that passes under the unit stops the belt.

Blasting Precautions

The subject of blasting was very extensively reviewed in a series of articles that appeared in the January and February, 1953, issues. Since that review was published we have endeavored to explore the subject of whether or not radio-equipped cars could prematurely explode electric detonators. It seems that one case occurred when a barge off-shore was preparing to set off heavy dynamite charges as part of a seismograph survey related to oil prospecting. A shore-to-barge radio was available and when it was used, the charge was accidentally exploded with disastrous results. Most operators who have gone into the subject seem to think that a radio equipped car has to be practically over the charge. We saw several blasting operations where signs were present asking radio car operators to shut off their instruments. Static electricity in a drier climate was blamed for a fatal accident. In this case it was thought that the movement of the electrode wires in the dry air acted as a collector for static charges and caused an explosion. In one case the quarryman placed the electric cap in a small stick of powder. As he walked towards the place of use he straightened out the folded wire leads by throwing them ahead of him with a sweep of the arm. The charge exploded in his hand. Static electricity in the dry western

(Continued on page 187)



The Central Builders Supply Co., Sunbury, Penn., uses pumps to convey cement to ready-mixed concrete plant and block plant



New plant of Alpha Portland Cement Co. at Jamesville, N.Y., is an excellent example of a single-kiln, wet process mill designed for utmost in compactness and economy in material handling

DEMANDS For Cement in 1954 Will Approach All-Time Peak

By BROR NORDBERG

Majority of manufacturers anticipate no decline
in volume of business as compared with 1953

ACCORDING TO COMMENTS in reply to our letter to the portland cement industry concerning business conditions, manufacturers might well have shipped in excess of 260 million barrels of cement in 1953 for another new record. They look forward to another excellent year in 1954.

Volume of shipments may drop approximately 5 percent in 1954, according to some of the larger manufacturers with multiple plants who are in good position to estimate prospects for business, but the majority of companies answering our letter expect to hold or equal their 1953 volume of sales. The second largest overall construction level in history is expected in 1954, according to authoritative sources of estimates.

Some 40 percent of those who predicted 1954 volume, anticipate increased volume of business in 1954, another 40 percent expect volume to hold equal to 1953, and the balance expect moderate declines.

Comments on Seven Questions

We asked for comments to seven questions as follows:

1. In the face of predictions of softening markets in the year ahead and keener competition for business, what steps may you take to insure as good profits in 1954 as they were in 1953?

2. It has been proved that industry spending is an important factor in maintaining good business. Are you prepared to continue normal expenditures for additional facilities, replacements and to keep up and improve efficiency, even though volume of business may appear to be on the verge of decreasing?

3. How do you anticipate volume of business for your company will be in 1954 in comparison with 1953?

4. Percentagewise, what fraction of the volume was proportioned to (a) housing, (b) ready-mixed concrete, (c) public works, and (d) highways in 1953? Will this distribution change markedly in 1954 and to what degree?

5. In view of the changed thinking in the federal government, is your company planning to stand more of the cost of transportation of cement and, if so, to what extent will the practice be followed in order to increase marketing areas?

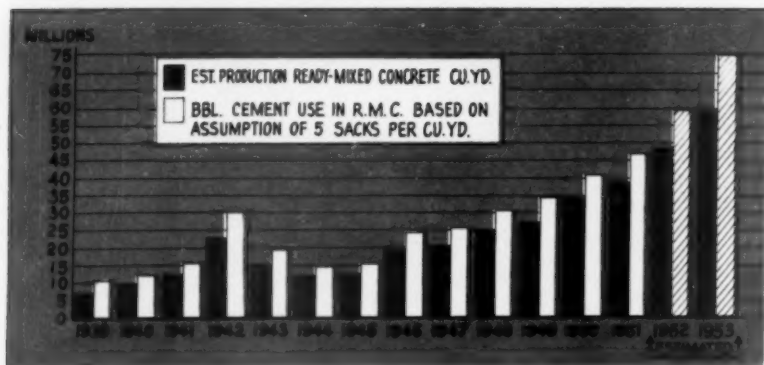
6. Should it be impractical to stand much of the cost of transportation, are you prepared to operate your plants profitably at reduced rates of production?

7. Are you proceeding with your expansion plans or is the emphasis, as far as production is concerned, to be concentrated on reduction of operating costs?

The responses were generous and we hereby express thanks to our correspondents for the splendid cooperation. In reply to our first question, the stress will continue to be on cost reduction throughout plant operations and on the strengthening of sales organizations. Price protection has made it difficult for some companies to maintain profit margins but, apparently, price levels are expected to improve in many areas in 1954. Certain companies have indicated that they are prepared, if necessary, to go farther afield for business. Equipment installations will be made where they will effect cost reductions, and the industry evidently is prepared to do a great deal in this direction.

A company in the far west has in-

CEMENT



Estimated production of ready-mixed concrete in millions of cubic yards and millions of barrels of cement used in its production since 1939. The figures up to and including 1951 were obtained from data released by the National Ready Mixed Concrete Association but the estimates for 1952 and 1953 are our own

licated that it is seriously considering the building of a new plant and one in the Rocky Mountain area is planning two new operations. Marquette Cement Manufacturing Co. has just announced the outright purchase of the Southern States Portland Cement Co., Rockmart, Ga., and the Superior Cement Div., New York Coal Sales Co. operation at Superior, Ohio. Plans provide for increasing capacity at both locations.

As far as expenditures for additional facilities and replacements are concerned, all cement companies intend to carry out at least normal programs. There will continue to be a reasonable amount of additions to capacity but the emphasis is to be principally on cost reduction. The maximum decline in anticipated volume for 1954, as reported by a small minority, will not exceed 10 percent.

The most interesting thing about the distribution of cement by markets in 1953, was the high percentage sold the ready-mixed concrete industry. One cement manufacturer said that "most of its production" went to ready-mixed concrete producers. None of those who replied to our letter reported that less than 39 percent of total production went to that industry and the average of our sample was 46 percent.

As to distribution expected in 1954, the principal trend is to more highway use and, in some areas, to more public works. This was to be expected in view of the trends in expenditures for highway construction and steps being taken by the several states to provide more funds. An estimated \$5.5 billion was spent for the purpose in 1953 of which \$3.25 billion was for new construction. It has been predicted that new highway construction will increase steadily each year to reach a \$5 billion figure by 1960. Normally, some 20 percent of total cement production is used in highway construction, including bridges and related structures.

There will be shortages of cement in Ohio and in bordering areas due to

the heavy demands for the Ohio Turnpike and the atomic energy plant under construction in southern Ohio. Users of cement in the east and Middle Atlantic states will also be affected by short supplies because of the heavy demands for the New York Thruway.

A moderate amount of freight absorption may be expected in 1954, where required to maintain high volume of sales, but the practice will be held to a minimum. Several companies already are absorbing freight for the first time since the FTC restraining order was clarified. However, high costs of transportation will prevent shipping to any considerable distance beyond "normal" market areas.

With only minor exceptions, plant operations are geared so that plants may be operated with profit at reduced rates of production, which is apparent from the designs of new plants and the types of rebuilding in recent years.

The industry's appraisal of the business picture and its plans can best be determined from direct comments received in answer to our letter. The following quotations are representative of the thinking.

A southern manufacturer:

"The cement industry must buy many things that go into the cost of making cement. These costs are continually rising, i.e., labor, machinery, coal, and many other materials. Therefore, the cost of producing cement cannot be lowered but there seems to be little chance of cement prices rising.

"We have in view no further expansion, but if volume warrants it we can keep up our general run of expenses.

"In our territory we expect some lessening of volume but not a great deal lessening, possibly 10 percent.

"Housing, ready-mixed concrete and public works will probably decrease considerably. We are looking for an increase in highway work.

"If our market territory shrinks in volume we will have to seek business in other territories, which will natu-

rally make us absorb freight, and this in turn makes for a lower average selling price.

"The industry has been very fortunate in that all of its members have operated their plants to 100 percent capacity. As the capacity diminishes, and if it should go down as low as 75 percent, the cost will rise at least 25 percent. There are so many factors that might change in the cost of production that it is hard to answer the question, but generally speaking, industrywise, we could not go along very far.

"We have no expansion of our plant in mind. We are getting out of our plant 100 percent capacity. We would strive to decrease costs but we see very little chance to do so with the present attitude of the public mind towards giving up any of the good things that they have had so long. Especially is labor unwilling to lose any of its great gains and will strive hard to increase those gains."

A western manufacturer:

"1. We do not anticipate any substantial softening of markets in the cement industry in this area in 1954. We do have several construction projects under way in our plants which will reduce our costs. As an illustration, we have just completed installation of a unit firing system in one of our plants. Also, quarry improvements are under way with a view to reducing costs of manufacture.

"2. We will continue to make normal expenditures within our plants where such expenditures can be justified in the interest of efficiency.

"3. We anticipate that volume of business for this company will be very close to 1953 volume during 1954.

"4. We do not have at hand a breakdown of our shipments into the categories you mention. However, we do believe that public works will take a slightly larger percentage of our sales during 1954 than was the case in 1953.

"5. The delivered price of cement in practically all of the area served by this company is based upon the plant price plus actual freight charges. In view of this fact it is not practical to expand our markets through absorption of freight.

"6. Yes, if necessary. However it will be our objective to keep the rate of production up.

"7. Our present expansion program has been aimed primarily at reducing costs of production. The quarry volume however will be increased considerably as a result of the expenditures we are now making.

"The expansion and improvement projects which we now have under way include a new finish grinding mill at one plant and the unit firing system and quarry expansion at a second plant. The cost of these improvements will be approximately \$1,000,000. They are about 50 percent finished at this time."

(Continued on page 160)

NEW!

COATED TUBE STOODITE

(STOODY 1293)

Does the work of
hard-facing rods costing
TWICE AS MUCH!

COATED TUBE STOODITE ends your search for better wear protection at low cost! Possesses an unequalled combination of high wear resistance and impact strength with the ultimate in weldability and application speed!

It's the best yet for crushing, earth-moving and similar types of equipment!

Two years of intensive field testing has proven its worth—now it's available to you. Try 50 lbs. today and compare with any other rod, regardless of price. You'll find **COATED TUBE STOODITE** unbeatable!

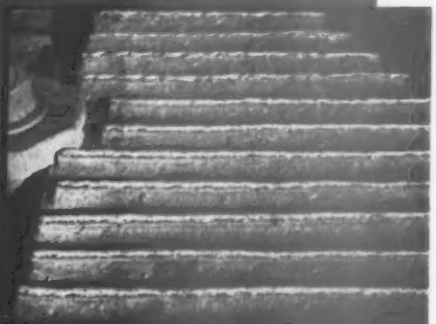
Your *Stoody* dealer (listed in the "yellow pages" of your phone book) is ready to supply you. Literature is available.



ROLL CRUSHERS



CONVEYER ROLLERS



JAW CRUSHERS



SHOVEL BUCKET AND TEETH

STOODY COMPANY

11929 EAST SLAUSON AVENUE, WHITTIER, CALIFORNIA

ROCK PRODUCTS, January, 1954

159



Grinding mill department of Lehigh Portland Cement Co.'s. Bunnell, Fla., plant illustrates the trend to having both finish and raw grinding mills under a single roof for economy of operation

A midwestern manufacturer:

"1. While it is true that there have been many predictions of softer markets in the coming year, the consensus of opinion here is that the construction market in the area we serve will not be appreciably weakened during 1954. In the event of any softening, however, we plan to continue with technological improvements in plant operations that will enable us to produce more efficiently. At the same time our sales staff has been materially strengthened during 1953 with a view toward being adequately prepared to meet any increased competition.

"2. Yes.

"3. As indicated in No. 1, it is our opinion that our 1954 business volume will be about the same as in 1953.

"4. Because our shipping records are not broken down into the same component parts indicated in your question, we're not in a position to readily provide you with all the percentages requested. However, our records do show that approximately 40 percent of shipments went into ready-mixed concrete, while about 25 percent went into highway construction during 1953.

"5. We have been competitive at all points of distribution. We do not anticipate any increase in marketing areas.

"6. Yes, we believe that our operations can be continued profitably, even at somewhat reduced rates of production.

"7. Present plans for 1954 include a continuation of our long-range expansion of production facilities, as well as installations and procedures to increase operating efficiency and for the reduction of operating costs."

A California manufacturer:

"We believe that our volume of business in 1954 will be approximately equal to 1953, the latter having been the biggest year in the company's history. Although it is widely predicted that construction expenditures nationally will be reduced several percent next year, we anticipate that the well-known growth factors inherent in California's economy should come close to balancing out this national decline. The state has adopted for next fiscal year a budget of \$205,000,000 for road construction, the funds for which are to be provided through the 1½¢ gas tax increase. This budget not only establishes a new record for California, but is also the largest state total throughout the nation. Federal projects, home and industrial building should decline in 1954, but construction of schools, stores and other commercial projects should provide support to cement demand in this area. Prospects are uncertain at this time, but our opinion is that 1954 will be a good year, with a fairly close balance being maintained between supply and demand.

"During 1953, we estimate that approximately 41 percent of our sales

went to the ready-mixed concrete industry and 26 percent to federal, state and local public works projects, the latter including dams, powerhouses, canals, military installations, highways, schools and public buildings. We do not expect this distribution to change considerably in 1954, although within the category of public works our shipments to dam projects should decline considerably while our sales to highway jobs should be higher.

"If 1954 sales hold approximately level with this year, it should not be necessary for us to make any appreciable change in our freight absorption policy. In that case, we would not be required to absorb a major share of the cost of transporting cement outside of our full mill net marketing area.

"Due to the heavy costs of plant construction and the fact that our second major post-war expansion program was completed a little over a year ago, we have no present plans for enlargement of our plant capacity. However, should market conditions change for the better, we could easily expand our capacity. We have budgeted approximately half a million dollars for plant improvements in 1954, for the purpose of improving efficiency and reducing operating costs.

"For the most part, these items are for plant betterment and modernization rather than for replacement."

(Continued on page 162)

9 TONS of SAND Per MINUTE

WITH A 14 X 12

THOMAS

SAND & GRAVEL

PUMP

LINDER DEIMUND,
CAPE GIRARDEAU
SAND MAN, SAYS:

"Durable Dredge Pumps, size 14x12"

"after about one year's service you
could hardly see any wear"

"finest pump I have ever used"

CAPE GIRARDEAU SAND COMPANY

*Southeast Missouri's Largest Producers of
WASHED AND SCREENED RIVER SAND*

HEAD OFFICE AT
400 - 402 N. MAIN STREET

CAPE GIRARDEAU, MISSOURI

October 14, 1953

Thomas Foundries, Inc.,
P. O. Box 1111,
Birmingham, Alabama

Gentlemen:

In January 1952 we selected one of your Thomas
Durable Dredge Pumps, size 14x12, for installation on
our new No. 6 Dredge.

Having spent thirty-three years of my life on dredges
and having worn out many pumps during that time, I selected
your pump for its modern design and being made of Ni-hard
metal. We wanted a pump that could be overhauled in a hurry
when repairs were necessary, and we like this feature of your
pump very much.

Recently we took off the suction line and side plates
of our pump, to see what wear had taken place, and we are
pleased to state herewith that, after about one year's service
we could hardly see any wear on the impeller or side-plates.

We often produce three hundred ten barge loads of sand
in from 32 to 45 minutes, with only one man to assist me, and
quite often I operate the entire dredge by myself.

We are very well pleased with our Thomas Durable Dredge
Pump. This is the finest pump I have ever used and can highly
recommend it to anyone in the dredging business.

Yours very truly;

CAPE GIRARDEAU SAND COMPANY,

Linder Deimund.

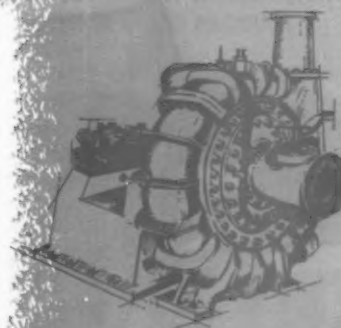
"modern design and being made of
Ni-hard metal"

"three hundred ten barge loads of
sand in from 32 to 45 minutes"

Here is a sand man talking to sand men and when he says
Thomas "is the finest pump I have ever used" it's time for
you to find out what he's talking about.

Linder Deimund has been in the sand and gravel business
33 years, now operates a company which is one of the
largest producers of sand in southeast Missouri. Read what
he says about his year's experience with a Thomas pump.

Write for literature explaining how Thomas Dredge Pumps
are made differently from conventional pumps . . . dif-
ferent in design and different in materials. We will send
you letters from other users, too, who are as enthusiastic
about Thomas pumps as Mr. Deimund. Write or wire today.



THOMAS FOUNDRIES, Incorporated

P. O. BOX 1111, BIRMINGHAM, ALABAMA

CEMENT

A Pacific Coast manufacturer:

"1. Our cement production and sales have been at capacity during 1953. We expect this situation to continue during the year 1954.

"We do expect some reduction in cement demand for some sources, but these should be offset by higher demand from other sources. For example, cement requirements for housing probably will be down slightly, but cement usage under the expanded California State Highway program will be up. On a geographical basis, we are forecasting some shifts in demand; but the net effect, if anything, will be for somewhat greater demand than we experienced during 1953 throughout our normal marketing area.

"Price protection in the industry has prevented price increases made this year from having much effect on profits; however, these profits will be realized to a greater degree as the year 1954 progresses. Competition for sales has been tightening, and we expect this trend will continue. However, we feel that we are well equipped to handle this situation.

"2. Our past policy of continuing normal expenditures for additional facilities, replacements, and to keep up and improve efficiency will be continued, even though volume of business might appear at a later date to be on the verge of decreasing.

"3. We are currently forecasting that our cement business volume next year will be up slightly. This is limited to a small degree, however, since

we have been operating at capacity during the entire year.

"4. So far this year, 54 percent of our business has gone to ready-mixed concrete producers. This percentage may drop next year due to a somewhat greater volume of dam business in the Northwest; however, the total volume is not expected to change. It should be noted that a great deal of ready-mixed concrete business in turn goes to other categories you have listed.

"Distribution is as follows:

"Public Works, 30-35 percent.

We have included in this category, irrigation, flood control and power projects, educational facilities and all military projects.

"Highways, 10-15 percent.

In this category is included streets, roads, bridges, sidewalks, and related structures.

"Housing, 12-17 percent.

"The remaining 33-48 percent of our business goes to a wide variety of uses, such as commercial, institutional and recreational buildings, public utilities, oil wells and industrial projects.

"The only change we expect in this distribution during 1954 is for housing to be down a couple of percentage points with highway usage up by the same amount.

"5. We do not expect the method of selling cement in our marketing area will change to any great extent as a result of the changed thinking in the federal government. We do not

believe we will have to absorb more of the cost of transporting cement; though we will, of course, maintain our pattern of market distribution.

"6. Although we do not anticipate any serious problem of freight absorption, we could operate our cement plant at considerably reduced rates of production.

"7. We are proceeding with expansion plans. We are actively considering an additional cement plant.

"Along with this new construction, we are not forgetting cost-reduction schemes. As you can well appreciate, the demise of excess profits tax makes this of prime importance."

A large eastern manufacturer with multiple plants:

"We do not expect a sharp softening of markets for cement in 1954. The physical volume of construction is likely to be down from this year from 5 to 10 percent. The industry should ship over 260 million barrels in 1953. Assuming a 7 percent reduction in shipments next year, the total will be over 240 million barrels. That is still a good year.

"We expect to continue normal expenditures for needed replacements and facilities to maintain efficiency and to improve costs. We are constantly alert to opportunities for additional facilities where market possibilities warrant and next year will be no exception.

"We expect our shipments in 1954 to be from 5 to 10 percent less than in 1953.

(Continued on page 164)



Above: A trend in the portland cement industry is to increase facilities for loading bulk cement into trucks. This view is at the Penn-Dixie Cement Corp. plant at West Winfield, Penn., where cement is shipped in company-owned bulk cement trucks



Right: Cement being accurately weighed to bulk cement trucks at West Winfield plant of Penn-Dixie

ANOTHER KENNEDY FIRST! *new type non-pressurized* Continuous Hydrator

PRODUCES HIGH QUALITY, EXTREMELY UNIFORM HYDRATED CALCITIC AND DOLOMITIC LIME WITH VIRTUALLY 100% HYDRATION.

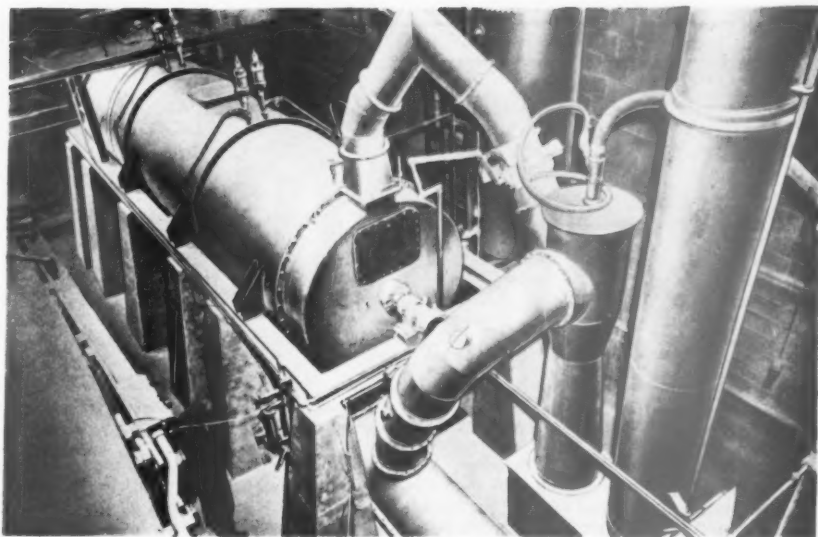
A development of far-reaching importance to the entire lime industry. Complete equipment now in operation at Lee Lime Corporation plant, Lee, Mass.

Continuous, non-pressure operation that hydrates virtually 100% of the magnesium content of the feed. Produces exceptionally uniform quality lime, in capacities to suit your requirements.

Revolutionary type heat exchanger creates catalytic effect. Lime produced in KVS rotary kiln is fed to hydrator at adjustable rate. Correct proportioning of water is accomplished with the use of control instruments.

The complete system engineered and built to rigid specifications by KVS presents a flexible arrangement of units to fit various plant layouts. Can be readily assembled for use to hydrate either high calcium or dolomitic limes.

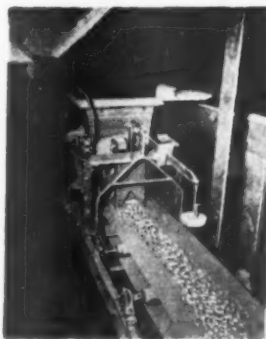
**IT COSTS
LESS..
TO OWN
THE BEST!**



Kennedy Hydrator for Dolomitic or Calcitic Lime



High-speed mixer at plant of Lee Lime Corporation, Lee, Mass.



Automatic Feeder used in conjunction with Hydrator at Lee Lime Corporation.

OUTSTANDING FEATURES OF THE CONTINUOUS HYDRATOR

- NON-PRESSURE HYDRATION
- VIRTUALLY 100% HYDRATION OF MAGNESIUM OXIDE
- CLOSED CIRCUIT HEAT EXCHANGER
- PLASTICITY OF 350 EMLOY ATTAINED
- CAPACITY TO SUIT YOUR REQUIREMENTS
- 92 TO 95 PERCENT WATER RETENTION IN THE FINISHED PRODUCT
- HYDRATES EITHER HIGH CALCIUM OR DOMOLITIC LIMES
- EXCEPTIONALLY UNIFORM QUALITY
- OVERBURNED OXIDES COMPLETELY HYDRATED
- ONE-MAN OPERATION

We invite inquiries regarding this revolutionary development.

KENNEDY - VAN SAUN
MANUFACTURING & ENGINEERING CORPORATION
TWO PARK AVENUE, NEW YORK
FACTORY DANVILLE, PA.

CEMENT

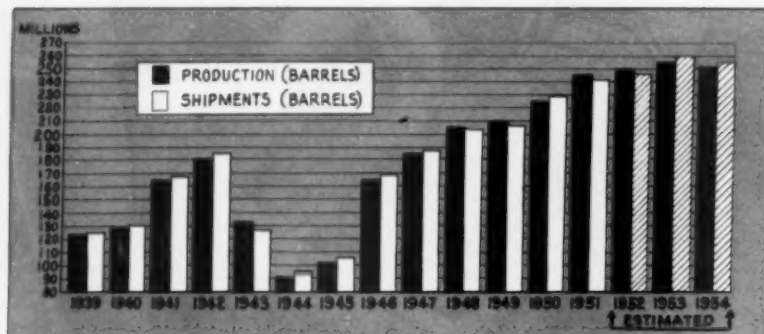


Chart showing trend in cement production and shipments since 1939 with estimates for 1952 to 1954. Data taken from U.S. Bureau of Mine reports from 1939 to 1951

"It is impossible to measure the quantity of cement going into the construction of housing and public works because a large part of it is supplied by building material dealers and thus loses its identity. In 1952 over 49 percent of our shipments went to ready-mixed concrete producers. Five percent of our shipments could be identified as being used in highway construction but undoubtedly a substantial portion of the ready-mixed concrete also went into highways. Our 1953 figures are not yet compiled.

"We reserve the right to meet in good faith the lower delivered price of a competitor. However, because of large increases in transportation charges since 1946 the distance cement can be moved economically has been sharply reduced. In 1954 we expect to be moderate both in the frequency and the amount of freight absorption.

"Obviously we always endeavor to operate our plants profitably at any rate of production. However, when operations are below capacity, production costs increase.

"We are proceeding with our plans for the future because we have the utmost confidence in the outlook for our country's economy in general and of the cement business in particular."

A manufacturer in New York State:

"1. We have been preparing for a time when keener competition would exist in the cement industry and the principal effort has been on modernizing our plant for more efficient and lower cost operation.

"2. Yes, we are planning on continuing our modernization of plant, and expansion as well, wherever the need for it is apparent.

"3. We do not expect much slackening in our business in 1954, compared with 1953.

"4. The distribution of our products in 1953 was approximately as follows:

- 20 percent for housing.
- 39 percent for ready-mixed concrete.
- 13 percent for public works.
- 28 percent for highways.

"As near as we can forecast at the present time, this percentage will not vary to any great degree in 1954.

"5. We lost some markets in the past by adhering strictly to an f.o.b. plant price policy but, of course, did not lose total volume because all of the product could be absorbed on an f.o.b. plant basis. We do expect, however, to absorb some transportation in order to meet competition and, in fact, have done so to a minor degree and have not placed any particular limit at this time on the practice of absorption but, of course, will have to do so as the matter develops.

"6. The changes which we have made in our plant in the last couple years have been designed to obtain better costs on lower production. This is due primarily to the installation of the long kiln instead of a short one.

"7. It is our intention to proceed with improvements in our plant and, of course, they will be governed as to the extent by the profitability of the business that we do. We have a program of such expenditures of between \$400,000 and \$500,000 for the year 1954."

A western manufacturer:

"1. We have recently installed some new equipment which adds to efficiency. Along with that the only way available to insure continuing profits is to watch the outgo and to see that we get paid for merchandise sold.

"2. We are prepared to continue expenditures for any additional equipment to improve efficiency. Such a plan is the only way we can keep ahead of the increasing cost of labor.

"3. Our volume in 1954 will not be less than in 1953.

"4. I do not have any percentage figures on the distribution of cement. Most of our output goes to ready-mixed concrete and concrete products which pretty well takes care of housing. We do not anticipate any change in this in 1954.

"5. As long as there is a restraining order on the books which prohibits freight absorption, we would not be inclined to take a chance on extending our sales area. It so happens that we have a pretty good business close to home, and there is little to be gained by changing over to a delivered price basis. Our present expansion plan is about completed so

that we are now in a position to concentrate on a reduction in operating costs."

A Pennsylvania manufacturer:

"1. We hope and expect to do an improved selling job and at the same time we are watching our production costs closely.

"2. We expect to keep our plants in good condition and certainly will consider any additions and replacements which will improve efficiency.

"3. We anticipate good business in 1954.

"4. We do not keep our records in a manner where we can give you reliable information. We do not plan any marked change in our distribution.

"5. This problem will have to be worked out as the situation develops.

"6. Our calculations on the break-even point indicate an appreciable area for operation at reduced rates at a profit.

"7. We do not contemplate any expansion plans nor any major plant revisions as we have just completed such work at our plants."

A Missouri manufacturer:

"We feel that our business will continue on about the same level in 1954 as it has been during the current year."

A Texas manufacturer:

"1. Although we can't be sure that our profits in 1954 will be as good as they were in 1953, we hope to take up some of the decline in volume during the latter part of this year by producing a new product.

"2. We expect to continue normal expenditures for replacements and to keep up and improve efficiency.

"3. We anticipate approximately a 10 percent decline in the volume of business in 1954 compared to 1953.

"4. During 1953 our cement sales were proportioned, in part, as follows:

- Lumber and supply dealers, 6 percent.
- Ready-mixed concrete producers, 47 percent.
- Concrete pipe and block companies, 4 percent.

"5. Our company is planning to stand more of the cost of transportation of cement. Our maximum absorption at the present time is 30¢ per barrel. Recently we began truck deliveries of both bulk and packaged cement.

"6. If we should find it impractical to stand much of the cost of transportation our plant could operate profitably at reduced rates of production.

"7. We have no plans for plant expansion and at present the emphasis as far as production is concerned is being concentrated on the reduction of operating costs."

A midwestern manufacturer:

"1. We do not anticipate any appreciable softening of the market in our territory. For the past eight years

(Continued on page 186)



2 Big Extra Values for you!

...in

JOY

SILVER STREAK

ROCK DRILLS

**1 EXCLUSIVE! CADMIUM PLATING
INSIDE and OUT**

Cadmium plating prevents rusting of JOY Silver Streak Rock Drills and spare parts while in use or in storage. In addition, the plating forms cadmium oxide under frictional heat and pressure. This so effectively acts as a lubricant that the inner parts will not score, *even if regular lubrication is temporarily neglected!* In addition to assuring a smooth "run-in," cadmium plating allows closer tolerance of precision fitting parts—vital factors in the power and long life of the drill.

**2 EXCLUSIVE! JOY DUAL VALVE
"Makes Air Do More Work"**

The fast, powerful JOY Dual Valve action results in more and harder-hitting piston strokes per minute, for faster drilling with less air. The right amount of air is admitted behind the piston on the power stroke, and air is excluded ahead of the piston, to exert maximum force on the drill steel. Then the Dual Valve meters just enough air ahead of the piston to return it with a fast, snappy action for the next blow. The air actually does more work!

WAD C 4028

Over 100 Years of Engineering Leadership

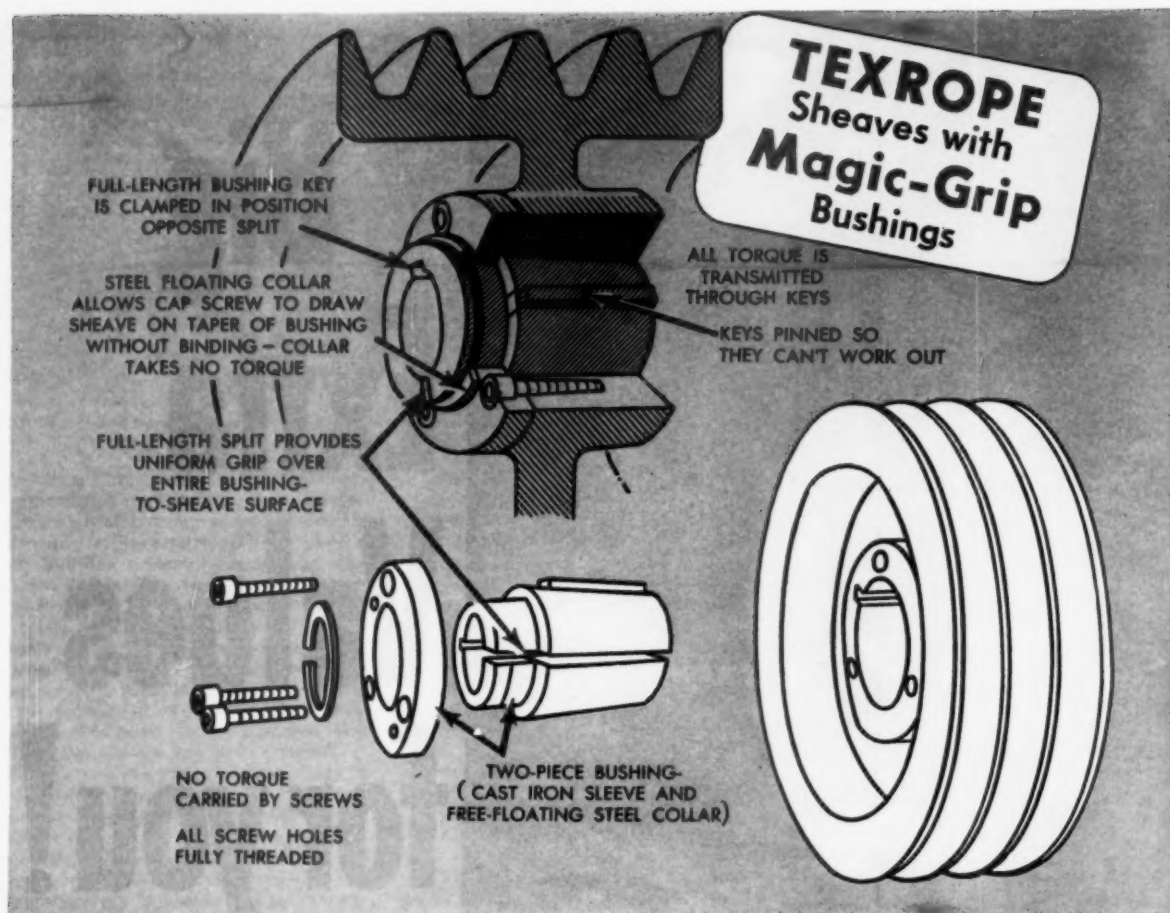
Consult a Joy Engineer

JOY MANUFACTURING COMPANY

GENERAL OFFICES: HENRY W. OLIVER BUILDING • PITTSBURGH 22, PA.

IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LIMITED, GALT, ONTARIO





Get the Only Sheave with ALL the Most Needed Features

Here's Comparison of Magic-Grip Sheave and Other Sheaves				
	Magic-Grip Sheaves	SHEAVE A	SHEAVE B	SHEAVE C
Bushing fully split for uniform clamping action.	Yes	Yes	No	Yes
Load carried by keys instead of threaded bolts.	Yes	No	No	No
Bushings cover full range of NEMA "probable" shaft diameters.	Yes	Yes	Yes	No
All screws engage full thread.	Yes	Yes	Yes	No
Mounts in one piece.	Yes	No	Yes	Yes
Squares itself with shaft.	Yes	No	No	No

Texrope and Magic-Grip are Allis-Chalmers trademarks.

ALLIS-CHALMERS

MILWAUKEE 1, WISCONSIN



A-4167

INFORMATION

TO HELP YOU MEET TODAY'S PROBLEMS AND TO MAKE PLANS FOR TOMORROW

You can obtain catalogs listed on these pages by merely checking and mailing the coupon below

- 1 **ARC WELDING PRODUCTS**—Twecol Products Co. has issued Twecolog No. 9 covering its complete line of electrode holders, ground clamps, cable connectors, and cable accessories for arc welding. Specifications and prices are included.
- 2 **BALL MILLS**—Linatex Corporation of America has released a brochure describing and illustrating ball mills. Design features, construction, specifications, line drawings, and typical application photographs are included.
- 3 **BEARINGS**—The Torrington Co., Bantam Bearings Div., has published Catalog No. 61, giving basic technical data, facilitating selection of the proper bearings for any installation. Heavy duty needle bearings are described and illustrated. Cross-section drawings, a bearing recommendation sheet, and specifications are also given.
- 4 **CEMENTED CARBIDES**—General Electric Co., Carbide Div., has issued Bulletin WR-107 giving information on the use of cemented carbides in wear-proofing pulverizing equipment. Photomicrographs of cemented carbides and a table of standard and special tip shapes for pulverizing blades and hammers are also included.
- 5 **CONCRETE CONSTRUCTION**—Calcium Chloride Institute has released Brief CB-4 entitled, "Calcium Chloride for Concrete Construction," which gives information on the use of calcium chloride in cold weather concrete construction.
- 6 **CONCRETE FORM CLAMPS**—H. J. Kruper Co. has announced literature describing the characteristics of "Taper-Tye" concrete form clamps.
- 7 **CONCRETE HARDENER**—The Upco Co. has issued Bulletin A.I.A. 3-B-1-2 and A.I.A. 23-Q on "Hydroment," a cementitious concrete hardener for concrete floors and Hydroment joint filler for brick, tile and glass block.
- 8 **CEMENT TESTER**—Baldwin-Lima-Hamilton Corp. has issued Bulletin 4205, describing and illustrating a 50,000-lb. cement tester. The evolution of the machine is given with development of A.S.T.M. Test Method C-109-52. Also given are the machine features and specifications.
- 9 **CONVEYING EQUIPMENT**—The Rapide-Standard Co., Inc., has issued Catalog GC-53 describing and illustrating Rapiatan conveying equipment. Explanations are also given on how the equipment may be used as separate units, or combined in a variety of ways to fit individual handling problems. Specifications and application suggestions are also given.
- 10 **CONVEYOR BELT FASTENERS**—W. O. & M. W. Talcott, Inc., announced three bulletins describing and illustrating three types of belt fasteners for rubber and fabric belting: Acme patch fasteners; conveyor belt fasteners; and clinching belt fasteners. Specifications are included.
- 11 **CRANE-EXCAVATORS**—American Steel Dredge Co., Inc., Wayne Crane Div., announced the first printing of a pocket-size technical booklet entitled, "Handbook of Data for Proper Selection of Crane-Excavators." Specific information on major design and construction fundamentals is given and comparison charts are included.
- 12 **CRANES**—Thew Shovel Co. has brought out a 12-page booklet on the application of Lorain cranes to the tilt-up method of precast concrete slab construction. Typical application photographs and detailed job data are also included.
- 13 **DIESEL TRACTOR**—Caterpillar Tractor Co. has issued Form 30875 illustrating and describing the diesel D8 tractor. A large cutaway view of the complete unit is given as well as a detailed specification sheet.
- 14 **ELECTRIC MOTOR CONTROL**—Electric Machinery Co. has announced a 36-page special issue of the "E-M Synchronizer No. 39," presenting basic facts in the proper selection and application of controls for large industrial motors. Illustrations and charts are included along with discussions of the latest developments in motor and personnel protective features.
- 15 **ENGINEERING FORMULAS**—Lefax Publishers, Philadelphia 7, Penn., have released a pocket-size book entitled, "Engineering Formulas & Tables," containing 350 pages of basic formulas, design data, and tables for civil, mechanical and electrical engineering. The data book is available from the publisher at a cost of \$2.75.
- 16 **ELECTRIC MOTOR LUBRICATION**—U. S. Electrical Motors, Inc., gives comparisons of lubricating methods for electric motors in its full-color Bulletin 1848. Three principal types of bearings used in motors—cartridge, standard open, and Lubriflush types—are explained.
- 17 **FIRE BRICK—LININGS—CASTINGS**—The Ironton Fire Brick Co. has published Bulletins 103 and 104 covering, respectively, specific applications of "Ironton Steel" high-duty, dry press fire brick, and its 10 refractory insulating concrete, "Ironton Castables" and "Ironton Insulates." Photographs, diagrams and tabular listings are included.
- 18 **FLOORING—SURFACING COMPOSITION**—Georgia Institute of Technology, The Engineering Experiment Station, has prepared a publication describing "Surco" entitled, "A Resilient Flooring and Surfacing Composition." Development work and typical installations are described.
- 19 **HAND HOISTS**—The Yale & Towne Manufacturing Co., Yale Materials Handling Div., has issued Bulletin P-1254A describing and illustrating Load King hand hoists, with capacities from 1/2 to 2 tons. Other models in the line of electric and hand hoists are also shown.
- 20 **HARDFACING METHODS**—Air Reduction Sales Co. has available a 12-page reprint of an article that appeared in *The Welding Journal* entitled, "Selection and Evaluation of Methods of Hardfacing." The major methods employed in the application of hard-facing materials are discussed, with special emphasis on the inert-gas-shielded arc process. Illustrations are included.
- 21 **HIGHWAY STABILIZERS**—Calcium Chloride Institute has issued Manual SM-1 entitled, "Calcium Chloride for Stabilization of Bases and Wearing Courses," dealing with properties and design, types and methods of construction, and specifications. Typical application photographs are given of highways constructed with calcium chloride.
- 22 **HOISTING EQUIPMENT**—Yale & Towne Manufacturing Co., Yale Materials Handling Div., has published Bulletin 1567 describing hand and electric hoisting equipment. Differential, screw gear and spur geared hand hoists are compared for relative efficiency and initial costs. Typical application photographs, the "Pul-Lift," a tool for either pulling or lifting jobs, are also given.
- 23 **HYDRAULIC OPERATION**—The Texas Co. has available Vol. XXXIX No. 10 of "Lubrication," featuring an article entitled, "Low Temperature Hydraulic Operations." Charts, graphs, line drawings and photographs are given.
- 24 **KILN DOORS—CONCRETE BLOCK RACKS**—Moore Dry Kiln Co. has released Bulletin \$309 which features metal-insulated doors for curing rooms, and concrete block racks. Illustrations and features are given.

Fill Out Reverse Side — MAIL TODAY

**FIRST CLASS
PERMIT NO. 1417
Sec. 34.9 P.L.&R.
CHICAGO, ILL.**

BUSINESS REPLY CARD

No Postage Stamp Necessary If Mailed in the United States

—POSTAGE WILL BE PAID BY—

ROCK PRODUCTS

309 WEST JACKSON BOULEVARD

CHICAGO 6, ILL.

FREE!

Information on

NEW LITERATURE

about your business

USE
COUPON
BELOW

- 25 **KILN END**—Allis-Chalmers Manufacturing Co. has released Bulletin 07B8040 describing its air-cooled kiln end. Diagrams are also included showing its advantages, performance and design.
- 26 **LIFT TRUCK**—Hyster Co. has available Form 1284 illustrating and describing the YT-40, a 4000-lb. capacity lift truck. Included are specifications and on-the-job photos.
- 27 **LOADERS**—Contractors Machinery Co., Inc. has released three bulletins on its Trojan Loaders, Models LA-40, LMS-75 and LC-100. Descriptions, illustrations and specifications are given.
- 28 **MAGNETS**—General Electric Co., Carbony Dept., has issued a six-page technical report, PM-111, giving information on the uses, design, properties and manufacture of Alnico permanent magnets, sintered grade 5. Charts, graphs and photomicrographs are used in explaining the magnetic and physical characteristics, and a table of tolerance is also included.
- 29 **MATERIALS-HANDLING**—The Yale & Towne Manufacturing Co., Yale Materials Handling Div., has published a revised edition of a booklet entitled, "The How Book of Cost-Cutting Materials Handling." Various skids and pallets, industrial power trucks, hand lift trucks, hand and electric hoists are illustrated and described.
- 30 **METAL DETECTOR**—Radio Corp. of America has available Catalog E-42 describing and illustrating the Universal electronic metal detector. Features, specifications and applications are given, as well as installation and operation data.
- 31 **MINING AND QUARRYING STEELS**—Bethlehem Steel Co. has brought out a 20-page booklet entitled "Bethlehem Mining and Quarrying Steels." The four groups discussed are hollow and auger steels for blast-hole drilling; solid drill steel for drilling and manufacturing of a variety of tools; broaching and channeller steels for quarrying dimensional stone; and stone-dressing steels for finishing tools for ornamental purposes. A chapter is devoted to ultra-alloy steels.
- 32 **MOBILE LABORATORY**—Fisher Scientific Co. has issued an illustrated bulletin describing the "Mobilab," a laboratory on wheels. Engineering and design features are given as well as illustrations of the various type layouts available.
- 33 **NEMA DIMENSIONS**—Westinghouse Electric Corp. has issued an 18- x 24-in. selection wall chart which compares the "old" and "new" NEMA standard dimensions for a-c motors from 1 to 30 hp. Dimensions for poly-phase squirrel-cage, polyphase wound rotor, and single-phase, foot-mounted motors, as well as for flange-mounted, drip-proof and totally-enclosed fan-cooled motors.
- 34 **PIPE LAYERS**—Caterpillar Tractor Co. has published Form D377 showing the versatility of Cat Pipe Layers in handling various type applications.
- 35 **PORTABLE HOISTS**—Coffing Hoist Co. has made available a catalog giving illustrations, descriptions and specifications for over 100 different types and sizes of portable hoists.
- 36 **POWER AND FLUID HANDLING**—Worthington Corp. has announced the first issue of its technical publication, "Power and Fluids," describing new product applications, processes and methods. Installations, operation and maintenance details of industrial apparatus are listed.
- 37 **PRECIPITATOR EQUIPMENT**—Western Precipitation Corp. has announced a 40-page booklet summarizing the latest advancements in its precipitator equipment and outlining various types of electrode designs, shell constructions, and electronic and mechanical rectifier systems.
- 38 **PROCESS EQUIPMENT**—Johns-Manville has issued an eight-page catalog entitled, "J-M Products For The Process Industries." Data on the properties of various products is given, as well as typical installation photographs. The products covered include pipe for overhead or underground water lines and process lines handling corrosive liquids and gases; vent pipe for gases, ducts, fumes and vapors; packings and gaskets; and refractories and insulating brick for furnaces, ovens and kilns operating to 3000 deg. F.
- 39 **RUST PREVENTION**—Rust-Oleum Corp. has published its 1954 general catalog on rust prevention, featuring 94 color chips of its products. Complete instructions for surface preparation and application of the products are also given. Two pages are devoted to questions and answers.
- 40 **SCRAPERS**—Caterpillar Tractor Co. has published Form 30772 describing scrapers and their applications to earthmoving and bulk-material handling. Tractor-scraper combinations are also shown in various operations.
- 41 **SILICA SAND RECOVERY**—Denver Equipment Co. has brought out a flowsheet study, No. M7-F25, on the recovery of low-iron silica sand by flotation. The study gives each step of the flotation process and deals with typical problems.
- 42 **SPEED REDUCER**—Philadelphia Gear Works has announced Catalog P-53 describing its planetary speed reducer. Construction details, diagrams and selection tables are given.
- 43 **SYNCHRONOUS MOTOR CONTROL**—General Electric Co. has announced Bulletin GEA-5873 describing synchronous motors, their operation and control. Problems common to the motor applications and their solutions are also explained in a question-answer technique. Various control units are described and dimensions and ratings are also included.
- 44 **TEMPERATURE CONTROL SYSTEMS**—Barber-Colman Co., Wheelco Instruments Div., has brought out Bulletin F-6149 on "Temperature Control Systems." Various control systems ranging from two-position "on-off" to proportional position with automatic reset are explained. Also included are recommendations governing the placement and use of sensing elements, control terminology, selection information, and application tables.
- 45 **TENNESSEE ROCK DEPOSITS**—The State of Tennessee, Department of Conservation, Division of Geology, has published Bulletin 58, Part II, with a geologic map of east Tennessee with explanatory text. Descriptions of rock units and formations are given, and deposits of dolomite, shale, limestone, etc. are described. Tables and drawings are also included which further explain the various formations.
- 46 **TRANSMISSION EQUIPMENT**—Lovejoy Flexible Coupling Co. has published an eight-page brochure on its transmission equipment. Included are specifications and illustrations of flexible couplings, variable speed pulleys and transmissions, and universal joints.
- 47 **UNIT HANDLING**—Signode Steel Strapping Co. has brought out an accordion folder describing "Unitizing," a system of unit bundling and unit handling of multiple bundles. Included are typical application photographs and accompanying descriptions.
- 48 **VARIABLE SPEED DRIVES**—Link-Belt Co. has released Folder 2374 with detailed information on the size 6 P.I.V. variable drive. Specifications and explanations of the three types are also given.
- 49 **WATER CONDITIONER**—Evis Manufacturing Co. has issued an eight-page bulletin entitled, "Boiler Scale Is Costing You Money," which describes a water conditioner for boilers and water heaters which removes deposits in water lines and controls corrosion and rust.
- 50 **WATER HOSE**—Quaker Rubber Corp., division of H. K. Porter Co., Inc., has released an illustrated bulletin describing the types of water hose now available. Included are photographs, cutaway sections of various hoses, tables and recommended applications.

Detach and Send Us This Post Card

ROCK PRODUCTS, 309 W. Jackson Blvd., Chicago, Ill. (RP 1-54)

I would like to have the items circled

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

(Please print or typewrite name and address)

Name _____ (Position) _____

Company _____

Street _____

City & State _____

Step up YOUR PRODUCTION with

WHITE SIX WHEELERS

Stewart Sand & Material Co. Keeps Whites Rolling

Here is a husky White Six Wheeler ready to roll at one of the Stewart Sand & Gravel concrete plants, Kansas City, Mo. Rough going in this business—but Whites have the power...the stamina...the dependability that makes them the choice of leaders in the industry...everywhere.

MORE and MORE, the call is for bigger loads and faster schedules in the busy, growing construction industry.

You can count on White six wheelers to keep moving at record pace on the big pouring jobs. Rugged and dependable, Whites are tailored right to the exact work conditions, for more work...longer life.

Your White Representative will tell you how *you* can use White Six Wheelers in your business...to *extra* advantage.

THE WHITE MOTOR COMPANY
Cleveland 1, Ohio



White

For more than 50 years the greatest name in trucks



Looking toward speakers' table at luncheon. From left to right: H. C. Krause, Arly Brooks, M. M. Green, James Griesemer, Robt. Koch, Albert Richardson, Paul N. Doll, Earl Thomas, and Arthur R. Alvis

Missouri Limestone Producers Association annual meeting at Jefferson City reviews national situation and methods of promoting sale of agricultural limestone through progressive merchandising

Promoting Agstone Market Discussed by Missouri Producers

MORE THAN 200 MEMBERS, associate members and guests of the Missouri Limestone Producers Association, attended the ninth annual meeting at the Governor Hotel, Jefferson City, December 6 and 7. A membership business meeting was held on December 6. President R. W. Hunt of Southwest Lime Co., Neosho, presided.

Officers and directors elected for 1954 are: President, Arthur R. Alvis, Arthur R. Alvis Contractor, Butler; vice-president, Albert Richardson, Gordon Quarries, Inc., Forest City; treasurer, Ray E. Mayes, Carthage Marble Corp., Carthage; board members, in addition to officers, James Griesemer, Billings; H. C. Krause, Columbia Quarry Co., St. Louis; M. M. Green, Carrollton; Joe Howard, Ozark; Arly Brooks, Brooks Quarry, Kahoka; Earl Thomas, T. & O. Lime and Rock Co., Sedalia. Paul N. Doll is manager, and Hendren and Andrae, counsel for the association.

A business meeting Monday morning was devoted to the presentation of data required for the reincorporation of Missouri Limestone Producers Association under the provision of section 355.010 to 355.520 V.A.M.S., a recent law enacted by the State legislature. This act will permit the association to change the charter and articles of agreement thereby giving a greater coverage of activities and broader scope.

The proposal was accepted by vote of the membership.

National Situation

The luncheon was presided over by Vice-president, Albert E. Richardson, Forrest City, who introduced Robert M. Koch, executive secretary, National Agricultural Limestone Institute, the principal speaker.

Mr. Koch prefaced his talk by explaining that he had no prepared paper, and that his remarks would be basically answers to questions he had been asked prior to the luncheon.

He pointed out that the Missouri

In closing, Mr. Koch made available copies of the report by the N.A.L.I. survey of farmer reaction to the A.C.P. program.

A summary of this report is shown in the table.

From All States	Percent Vote to Continue A.C.P.	Percent Vote to Increase A.C.P.	Percent Vote to Cut A.C.P.
All Farmers	83.7	72.4	16.3
Farm Bureau Members	79.3	68.3	20.7
Grange Members	80.6	70.5	19.4

association had the largest state membership in the national association, and has held that position for the past nine years.

Demand for agricultural limestone can be promoted by proper merchandising to bring volume to the high level reached in 1953. Mr. Koch emphasized as he has before that the help and cooperation of the county agent can be of great assistance. Up until 1936, a volume of 3,000,000 tons of agstone annually was the greatest amount used. With government financial aid, county agent cooperation and progressive merchandising this tonnage was moved up to 30,000,000 tons. Actually the indicated requirements are 70,000,000 to 80,000,000 tons per year. Proper programming, both federal and individual, together with extensive merchandising can bring this about.

The national program, he added, includes a provision for the farmer to select an alternate system such as proven performance, for example, to determine the amount of limestone required per acre other than an actual soil sample test. He urged Missouri association members to have this provision included in their State program for the coming year. Mr. Koch stated that any alternate system of quantity determination would step up present limestone usage considerably.

A total breakdown by individual states will be mailed to all members upon compilation.

In the general session following the luncheon, Arthur R. Alvis, president-elect, introduced J. E. Gray, field engineer, N.C.S.A., Washington, D. C., who spoke on stabilized aggregate base courses for highway construction. Mr. Gray showed a color motion picture of the entire operation from quarry to finished road. Complete details of this type construction were presented in a report before the National Crushed Stone Association, and

(Continued on page 173)



Arthur R. Alvis, newly elected president



SMIDTH

MACHINERY

FOR

CEMENT • LIME • ORE

Smidth Machinery has been supplied to over
70 COUNTRIES OF THE WORLD

INCLUDING

1000
Rotary Kilns

5000
Grinding Mills

In addition to rotary kilns and grinding mills, Smidth equipment includes a complete line of machinery such as coolers, agitators, washmills, pumps, conveyors, packers, separators, etc., with accessories, for use in Cement, Lime and Ore plants.

For Smidth Machinery apply to:

F. L. Smidth & Co., A/S
Vestergade 33,
Copenhagen K, Denmark

F. L. Smidth & Co.
11 West 42nd Street
New York 36, N. Y.

F. L. Smidth & Co., Ltd.,
105, Piccadilly,
London, W. 1, England

F. L. Smidth & Cie France
80 Rue Talbott
Paris (9e) France

F. L. Smidth & Co. of Canada, Ltd.
11 West 42nd Street
New York 36, N. Y.

F. L. Smidth & Co. (Bombay) Ltd.
42 Queen's Road
Bombay, India

McLanahan **SCREW WASHERS**

For the Removal of Waste
 and Water from Sand
 and Similar Materials

are designed for long service life
 and lowest maintenance cost

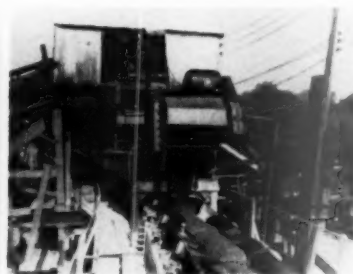
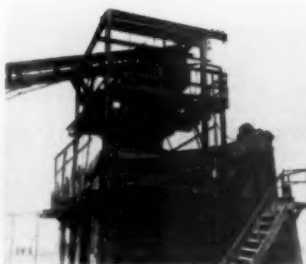


McLanahan Screw Washers—thoroughly proven in service—provide the ultimate in equipment for the efficient, low cost removal of foreign material and water from sand or coarse materials.

These washers contain many outstanding features, including: anti-friction bearings which are easily removed without disassembly—extra large settling area—enclosed reduction drive—flights are cast chilled alloy iron for extreme hardness and resistance to wear.

Washers are available in Single and Double Screw models illustrated—in 20' and 25' lengths dependent on moisture content and capacity desired. Investigate today!

Typical installations



McLANAHAN & STONE CORPORATION

Pit, Mine and Quarry Equipment Headquarters Since 1835
 Hollidaysburg, Pennsylvania

Write for Bulletin SW-953

This bulletin contains data and drawings on Single and Double Screw Washers. Write for your copy today!

Dependable Products: Single and Double Roll-and-Jaw Crushers, Crushing Plants, Exporters, Powerhouses, Pumps, Conveyors, Elevators, Screens, Grizzlies, Steel Log Washers, Snow Washers, Sand Drags, Hauls, Jags, Dry Pans, Dryers, Scrap Handlers, Rollers, Gears, Sawings, Sprinklers, Shovels, Buffers, Oil Guns, Elevator Buckets, Gratings, Car Wheels, Frames and Brakes Castings.



Paul N. Doll, secretary of the Missouri association

(Continued from page 170)

published in ROCK PRODUCTS, March, 1953, page 83.

Dr. E. L. Clark, Missouri State Geologist, described magnesium resources in Missouri. Dr. Clark stated that sources of magnesium in Missouri



Mr. and Mrs. M. M. Green

are from dolomitic limestone or calcined dolomite. Vast tonnages, he said are located throughout the entire Ozark area and northeastern Missouri. In the northern and northwestern section of the state, thin layers of dolomitic limestone occur, which

may, by special treatment and selective mining or quarrying, be used, if the demand for magnesium becomes sufficient to justify additional mining costs.

Essentially, dolomitic limestone, which is found in the cambro-ordovician rock of the Ozarks in thicknesses up to 1800 ft., is available to supply any possible future demand.

Dr. Clark added that in the north and northwest, where there is a greater demand for magnesium, the only sources are from thin dolomitic limestone occurring in the Pennsylvanian system of rocks. Production cost, he pointed out, would eliminate this source unless there would be a substantial price increase.

In conclusion, Dr. Clark stated that it may in some cases become neces-



Dr. W. A. Albrecht, director, Department of Soils, Missouri State University

sary to lower the specifications on calcium carbonate equivalent if magnesium is to be obtained, because in the "dolomitization" process there may have been iron and silica introduced. Limestone that tends to be more shaley is most susceptible to "dolomitization" and infiltration of magnesium.

The meeting closed with the banquet, where association president, Russell W. Hunt presented the new



Dr. E. L. Clark, Missouri state geologist

officers and board of directors, guests of honor and the speaker of the evening, Leon Hill, nationally known humorist. Mr. Hunt thanked the associate members who provided the entertainment.

Oklahoma Haydite Plant

OKLAHOMA LIGHTWEIGHT AGGREGATE Co., Choctaw, Okla., has begun operation of its new Haydite lightweight aggregate plant. The first shipment of Haydite was made early in December to Harter Marblecrete Stone Co., Oklahoma City.

The Choctaw plant, first in Oklahoma to produce expanded clay lightweight aggregate, is operated by a Delaware corporation which is licensed to do business in the state. It is owned 51 percent by Texas Industries, Inc., and 49 percent by Oklahoma stockholders. The firm also operates similar plants in 14 Texas and Louisiana cities.

Construction of the Choctaw plant began last May, 1953. The plant, including the clay deposits, occupies a 90-acre tract, and was built at a cost of approximately \$250,000. Annual production will be about 100,000 cu. yd. of lightweight aggregate, all of which will be distributed in Oklahoma City and surrounding territory. Heretofore, all expanded clay or shale aggregate used in Oklahoma had been shipped primarily from Texas, Kansas and Arkansas.

Alexander R. McVoy, vice-president, Texas Industries, Inc., in charge of aggregate operations, supervised the construction of the Choctaw plant. L. M. Harris is plant superintendent. With the Choctaw plant in operation, the Texas firm reportedly is now the nation's largest producer of expanded clay and shale lightweight aggregate.

Adds Rock Crusher

JOE H. OLDHAM has expanded his stone quarrying and crushing operations near Liberty, Mo., by the addition of a new \$100,000 jaw crusher with a 150-t.p.h. capacity. Mr. Oldham also operates a ready-mixed concrete plant at Liberty.



Left to right: K. K. Kinsey, president of N.A.L.I., G. W. Van Kepple, and Robt. Koch, executive secretary of N.A.L.I.

Flex Elex



ELECTRIC HEATING Pays Its Way Readily

For fine mesh screening of damp materials such as lime, ag-lime and silica sand, FlexElex electric heating on a Leahy No-Blind Vibrating screen pays for itself in a matter of months.

By keeping the mesh wide open for full capacity, accurately sized production, the savings are obvious to anyone.

By eliminating hand cleaning operations, the labor savings are substantial.

Prolonged life of the screen cloth greatly reduces jacket replacement costs and outage time. With virtual elimination of idle time you net greater capacity and production.

The sum total of these advantages represents a profit factor it will pay you to investigate. Send for full information.

Leahy

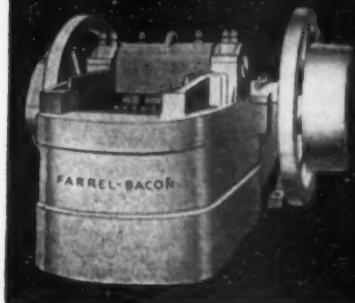
THE DEISTER CONCENTRATOR COMPANY

The Original Deister Co., Incorporated 1906

915 Glasgow Avenue

Fort Wayne 3, Indiana

COMPLETE CRUSHING PLANTS designed and equipped by FARREL-BACON



Farrel-Bacon provides a complete engineering service, including design of plant and supplying all equipment from primary crusher to bin gate. Jaw-type crushers are available in sizes from 60" x 48" to 10" x 7". Write for complete information.

FARREL-BACON
ANSONIA, CONNECTICUT

Rocky's Notes

(Continued from page 77)

on the properties of the clay minerals. Just as we have pointed out in the article elsewhere in this issue on "Prospective Chemistry of Cement and Concrete," clay research has definitely established that the water closest to the mineral particle is not ordinary water—it has some kind of a crystalline form and is more dense than ordinary water. Apparently in most cases it is three to ten layers deep, and the transitions from it to ordinary water can be abrupt or gradual. The depth of three to ten layers of this adsorbed water is 8 to 28 Angstrom units. If one will refer back to our initial article of this series (July 1952) he will find that an Angstrom unit (\AA) is one-ten-millionth ($\frac{1}{10,000,000}$) of a millimeter, which may give the reader some slight comprehension of how infinitely small is a water layer 8 to 28 \AA deep. Hence, much can be learned about the water held in clay minerals by studying the temperatures and manner in which it is released on heating—this is a part of the method of differential thermal analysis, that has been more recently applied to the study of cement gels. By such means clay researchers have determined that the density of the first few molecular layers of water may be as low as 0.73 (in other words its volume is less than three-fourths the volume of ordinary water). It has not been found, however, that such adsorbed water can not be frozen, although the freezing temperature is depressed. That the first few layers of water have definite bonding power is proved by molding sand mixtures, when wet only to the proper dampness.

The dehydration curves of clay also give considerable information about the nature of the bound water. This sort of study has been made on portland cement pastes by the P.C.A., and comparison of the graphs with those of some clays shows strong similarities. There is usually a jump in the loss of water in the case of clays between 400 and 600 deg. C., which is accounted for by the release of the hydroxyl bonds in the layer-structure clays (or in the calcium hydroxide structure in cement pastes), but in the fibrous-structure clays like sepiolite and palygorskite these jumps do not occur, and the graphs more nearly resemble the greater regularity of loss of water from cement gels below the calcining temperature of Ca(OH)_2 . Sepiolite is an inosilicate of magnesium ($\text{Mg}_3\text{Si}_4\text{O}_{11} \cdot n\text{H}_2\text{O}$), or written as the chemical formulas of cement are, $3\text{MgO} \cdot 4\text{SiO}_2 \cdot n\text{H}_2\text{O}$, which means it roughly corresponds to an hydrated monocalcium silicate, presumed to be an end product of an hydrated and aged portland cement gel. There are, of course, no clay minerals containing anywhere near the amount of calcium, or calcium oxide or hydroxide, that is found in

portland cement pastes, for the reason, probably, that hydrated calcium silicates as such are not stable enough to survive as separate colloid particles. But, there seems good reason to believe that the structures of the combined hydrated calcium, silicon and aluminum oxides as they exist in the structures of clays, combined also with such multivalent atoms as magnesium, iron, etc., have their parallels in portland cement pastes, but of course in quite different proportions.

National Gypsum Outlook

MELVIN H. BAKER, chairman of the board, National Gypsum Co., Buffalo, N.Y., in a report to the New York Society of Security Analysts, stated that sales of National Gypsum Co., in the first half of 1954, are expected to dip slightly from the first six months of 1953, but total income should increase during the 1954 period. Mr. Baker estimated 1954 first-half sales at about \$66,000,000, compared with \$57,598,945 in the first half of 1953. He added that some price increases, certain savings in cost, and the omission of the excess profits tax will raise total income for the period.

The company's forecast for the first half of 1954 indicates a shrinkage of about 8 percent in sales of company building material products used in new construction. Sales of products for the repair market are expected to remain at about the same level as for the first half of 1953.

Calaveras Expansion

CALAVERAS CEMENT CO., San Francisco, Calif., recently announced a \$328,000 improvement program in 1954 for its San Andreas, Calif., plant. The expenditures will be largely for the purpose of increasing operating and shipping efficiency. An additional expenditure of \$210,000 for plant modernization is also being considered, and may be undertaken during 1954. During 1953, the company has paid off \$600,000 of the \$1,500,000 in bank loans which partially financed a major expansion of the plant last year.

Oregon Lime Plant

CHEMICAL LIME, INC., a newly organized Oregon corporation, has announced plans to build a lime plant at Baker, Ore. Initial plant capacity will be 40,000 tons per year of burned-lime products. Capacity is to be increased to 100,000 tons annually within the next three years. This will be the first commercial lime produced in the State of Oregon in the past six years.

Purchases Asphalt Plant

VALLEY ASPHALT CO., Cincinnati, Ohio, has purchased an asphalt mixing plant at Sargents, Ohio, formerly owned by Red Eagle Corp. of Columbus, Ohio.

FOR GREATER EFFICIENCY buy CAL-WIC INDUSTRIAL SCREENS


Let CF&I engineers help select the best CAL-WIC screen for your operation. CAL-WIC screens are woven to the most exacting specifications and are available in ferrous and non-ferrous metals to meet individual requirements.

SELECTING THE RIGHT SCREEN FOR EVERY PURPOSE...CHECK THE EQ

(Efficiency quotient)

TYPE OF EQUIPMENT...	<input type="checkbox"/> Vibrating	<input type="checkbox"/> Revolving	<input type="checkbox"/> Stationary		
SCREEN WILL BE OPERATED...	<input type="checkbox"/> Horizontally	<input type="checkbox"/> Vertically	<input type="checkbox"/> At an Angle		
MAJOR IMPORTANCE IS...	<input type="checkbox"/> Accurate Grading	<input type="checkbox"/> Tonnage	<input type="checkbox"/> Life of Screen		
MATERIAL TO BE SCREENED...	<input type="checkbox"/> Dry	<input type="checkbox"/> Damp	<input type="checkbox"/> With Water	<input type="checkbox"/> Sharp	<input type="checkbox"/> Abrasive
RATIO IN FEED TO THE SCREEN...	<input type="checkbox"/> Oversize	<input type="checkbox"/> Undersize			
LIMITATIONS OF SIZE VARIATIONS...	<input type="checkbox"/> Wire May Vary + or -		<input type="checkbox"/> Opening May Vary + or -		
ANY SPECIAL REQUIREMENT...	<input type="checkbox"/> Resist Acid Action	<input type="checkbox"/> Resist Alkali Action	<input type="checkbox"/> Resist Heat Action		
TYPE OF EDGE PREPARATION...	<input type="checkbox"/> Hook Strip	<input type="checkbox"/> Welded Edges	<input type="checkbox"/> Flattened Edges		

DENVER • NEW YORK • OAKLAND

CAL-WIC
INDUSTRIAL SCREENS 
THE COLORADO FUEL AND IRON CORPORATION

1807

Programs of Aggregates Industries Conventions

JOINT SESSIONS will be held by the National Ready Mixed Concrete Association and the National Sand and Gravel Association, February 15-16-17-18-19, 1954. Booth numbers and manufacturers displaying equipment are shown in the floor layout and by alphabetical lists. The daily program follows:

Sunday, February 14

There will be a meeting of the exhibitors and a joint meeting of the two executive committees.

Monday, February 15

The National Sand and Gravel Association Board of Directors meets separately, followed by a joint luncheon, the N.R.M.C.A. board meeting, and a conference of executives of the state, area, and district associations. In the afternoon, the biennial exhibit will be open for inspection.

Tuesday, February 16

A joint meeting of the N.S.G.A. and N.R.M.C.A. will include addresses by the presidents, reports of nominating committees, and election of officers. Presentation of N.S.G.A. Safety Tro-

phies, provided by ROCK PRODUCTS, will be made. Joint afternoon session will include talks on "Freeway Construction," by Harrison Baker, vice-chairman, California Highway Commission; "Federal Aid Highway Principles," by G. Donald Kennedy, executive vice-president, Portland Cement Association; and the "Taxation Program Which Congress Will Consider in 1954," by John T. Sapienza, counsel for the N.S.G.A. and N.R.M.C.A.

Wednesday, February 17

In a separate session, the N.S.G.A. will present talks on "Percentage Depletion," with the opening statement by J. Rutledge Hill, committee chairman on Taxation. Paul J. Kremer, Buffalo, N.Y., and John W. Murphy, Spokane, Wash., will discuss methods in taking percentage depletion, followed by a talk on "Workman's Compensation," by Theodore C. Waters, Baltimore, Md., and "Existing Practice in States on Severance Taxes," by Harold M. Lacy, Dallas, Texas.

The N.R.M.C.A. morning session will feature talks and reports on "Operating Problems." Topics will include: "New Standards of Truck Mixer Manufacturers Bureau," a report by Robert W. Smith, chairman of the bureau; Stanton Walker, director of engineering, will discuss "Truck Mixer Tests of the Association"; Delmar L. Bloem, assistant director of engineering, will present "Fly Ash and Other Admixtures"; "Ready Mixed Concrete Sampling and Testing," will be discussed by Fred F. Bartel, Tews Lime and Cement Co., Milwaukee, Wis.; and a "Report on Revolution

Counters," a joint report by Stanton Walker, Wm. J. Hicklin, Jr., Capitol Concrete Co., Jacksonville, Fla., and John B. Donovan, Valentine Concrete Co., Springfield, Mass., will be presented. Round table discussions will follow.

At the joint luncheon, Herbert G. Jahncke, president of the N.R.M.C.A., will present Stephen Stepanian, an honorary membership on the Board of Directors of the N.R.M.C.A. The Honorable W. Sterling Cole, chairman of the Joint Congressional Committee on Atomic Energy, will be the principal speaker.

In a separate afternoon session, the N.S.G.A. will discuss "Merchandising Problems," with Charles E. Brady, Material Sales Co., Lilesville, N.C., presiding, the subjects covered being standard sales agreements and compensation of salesmen. A discussion of laboratory tests will be given by the association engineering staff.

"Group Insurance and Pension Plans," will be the joint session topic with an address by Donald Shepherd, John Hancock Mutual Life, and the report of Kenneth E. Tobin, Jr., Group Insurance Administrator, will be presented. W. Crosby Roper, counsel for the associations, will discuss application of the Taft-Hartley Act to Group Insurance and Pension Plans.

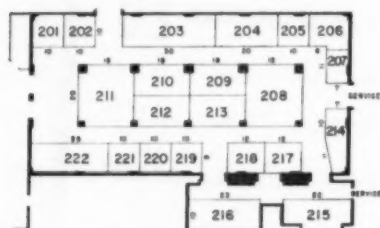
Thursday, February 18

The N.R.M.C.A. session will discuss, "Merchandising" with Robert C. Collins, Warner Co., presiding. He will present new association publications, "Standard Clauses for Sales Agreements," literature for producers to develop wider markets, and customer survey results.

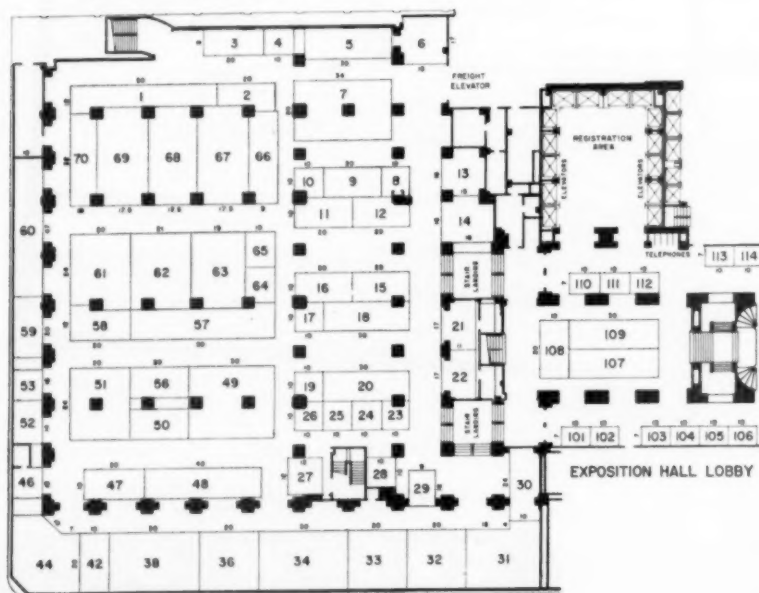
The combined N.S.G.A. and N.R.M.C.A., sessions with John W. Murphy presiding, will include a discussion on "Cost Determination," with Eugene J. Halter, J. K. Davison & Bros., Pittsburgh, Penn., and Paul J. Kremer participating. A general discussion on depreciation practices and zoning problems will terminate the session.

Thursday afternoon joint session will deal with the strike problem; the discussion to be led by members who experienced serious strikes during 1953. Additional talks on strike problems will be given by Fred J. Grace, Jr., Baton Rouge Sand and Gravel Co., Baton Rouge, La., and W. Crosby Roper, Jr.

In a simultaneous N.S.G.A. and N.R.M.C.A. session covering, "Operations," M. C. Evans, Becker County Sand and Gravel Co., Cheraw, S.C., and Robert H. Klossner, Texas Construction Material Co., Houston, Texas, will lead the discussion relative to retention of fines in sand, producing fines by crushing and grinding, removal of deleterious particles, and use of belt conveyors.



NORTH EXPOSITION HALL



SOUTH EXPOSITION HALL

Booth layout for exhibits at joint convention of National Sand and Gravel Association and National Ready Mixed Concrete Association

From ancient hand methods . . .

**to modern
high speed
operation**



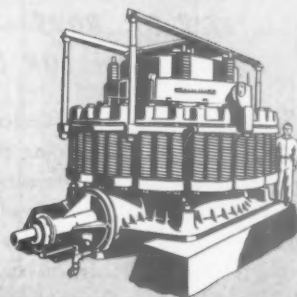
Statue of "The Grinder", represents a Scythian slave whetting a knife on an irregular shaped, natural sharpening stone.

ABRASIVES have been the "Silent Partners" of World Progress

Since ancient man's first need for tools and weapons, abrasives have been a decisive factor in shaping the progress of civilization. As man's manufacturing abilities increased, natural abrasives were no longer sufficient . . . which led to the use of the first manufactured grinding wheel. Today, practically every man-made product depends upon abrasives.

Of utmost importance in processing, prior to the manufacture of the finished abrasive product, is the method of reducing the hard component materials into workable sizes as quickly and efficiently as possible. *Here, as in all other fields where fast, low cost reduction is paramount for profitable production, SYMONS* Cone Crushers are widely used by the leading producers of abrasive products . . . to produce a constant, uniform size of material.*

NORDBERG MFG. CO., Milwaukee, Wisconsin C-253



SYMONS* Cone Crushers . . . the machines that revolutionized crushing practice . . . are built in Standard, Short Head, and Intermediate types, with crushing heads from 22 inches to 7 feet in diameter—in capacities from 6 to 900 tons per hour.

***SYMONS...A REGISTERED NORDBERG TRADEMARK KNOWN THROUGHOUT THE WORLD.**



NORDBERG



MACHINERY FOR PROCESSING ORES and INDUSTRIAL MINERALS
NEW YORK • SAN FRANCISCO • DULUTH • WASHINGTON • TORONTO
MEXICO, D.F. • LONDON • PARIS • JOHANNESBURG



SYMONS
PRIMARY
CRUSHERS



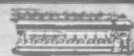
GRINDING MILLS



DIESEL ENGINES



SYMONS
VIBRATING
GRIZZLIES
and
SCREENS



DIESEL ENGINES



**"IT'S OK. BOYS—THAT HEIL BODY
IS BUILT FOR LOAD-SHOCK!"**

- Heil Rock Bodies, fabricated of $\frac{1}{4}$ " (or heavier) steel plate with rigid reinforcing provided by box-member ribs and 2" hardwood cushion sandwiched between bottom and wearing plate, will withstand the punishment of handling heavy loads of rock when loaded with big buckets.

- Strong-Arm Hoists raise and hold loads efficiently and dependably. Hoist frame takes all stresses imposed by action of the hoist without transferring any stress to truck frame.

- Heil Bodies and Hoists are individually engineered to your requirements for body length and load distribution.

Write for Bulletin BH-52106.

THE HEIL CO.

DEPT. 7714, 3077 WEST MONTANA STREET, MILWAUKEE 1, WISCONSIN

Factories: Milwaukee, Wis. — Hillside, N. J.

Sales Offices: New York, Union, N. J., Washington, D. C., Atlanta, Cleveland, Milwaukee, Detroit, Chicago, Kansas City, Denver, Dallas, Los Angeles, Seattle.



ROCK BODY



CONTRACTORS' BODY



ELEVATING TAILGATES

Friday, February 19

The joint sessions of the N.S.G.A. and N.R.M.C.A. will hold a round table discussion on "Business Prospects for 1954," Congressional attitude on the Taft-Hartley Act, and a review of legislative problems in the various states.

Crushed Stone Association Program

CONVENTION DATES for the 37th annual meeting of the National Crushed Stone Association at the Conrad Hilton Hotel, Chicago, are February 22 to 24, inclusive. This meeting is in the week following the National Ready Mixed Concrete and National Sand and Gravel Associations' joint conventions.

The program this year will include papers, demonstrations, outstanding speakers, and reports of practical interest to the industry.

The complete schedule follows:

Sunday, February 21

Registration and a meeting of the Manufacturers Division, Board of Directors, are scheduled for the morning. In the afternoon, a business meeting of the National Crushed Stone Association Board of Directors will be held.

Monday, February 22

Monday morning program will include motion pictures and greetings from President H. C. Krause, election of officers, and the following reports and addresses:

"Business Conditions During 1953 and the Outlook for 1954," will summarize reports of regional vice-presidents and will be presented by President H. C. Krause.

Reports by Engineering Director A. T. Goldbeck, Field Engineer J. E. Gray and Administrative Director J. R. Boyd will be presented.

Ralph W. Carney, former vice-president in charge of marketing, Colemand Co., Inc., Wichita, Kan., will present a paper, "Selling to Defend America."

At the traditional greeting luncheon, Clarence Manion will deliver an address, "The Constitution is Your Business." Mr. Manion is former dean, University of Notre Dame, College of Law, and Chairman of Commission on Inter-Governmental Relations.

The Manufacturing Division Exposition will be open for inspection in the afternoon. Evening entertainment will include a cocktail party and buffet dinner followed by a dance.

Tuesday, February 23

Panel discussions have been specially selected to cover many topics of interest to the operating men. Following the discussion there will be a question and answer period.

The annual luncheon and business meeting of the Manufacturers Division will start the afternoon session. A report on "Percentage Depletion,"

by Russell Rarey, president, Marble Cliff Quarries Co., Columbus, Ohio, and chairman, Percentage Depletion Committee, will follow the luncheon.

Additional afternoon speakers, reports and activities will include: "The Plant Control of Bituminous Concrete" (speaker not designated), "America, The Constructive World Force," by Richard Thomas, news analyst, foreign correspondent, and member of staff of *New York Times*, New York, N.Y.

A meeting of the Manufacturers Division, New Board of Directors, and a meeting and dinner of the Accident Prevention Committee will follow. The evening will be open for any special meetings that may be arranged by individual groups.

Wednesday, February 24

The exhibits and displays of the Manufacturers Division in exposition hall will be open in the morning.

At the general luncheon there will be the presentation of the National Crushed Stone Association Safety Contest awards. Awards will be presented by J. J. Forbes, director, U.S. Bureau of Mines, Department of the Interior.

"You Are Better Than You Sound," will be the topic of the luncheon speaker, Lucile La Chapelle, noted voice authority, Chicago, Ill.

Three talks are scheduled to complete the afternoon session: "Current Legislative Developments of Particular Interest to Crushed Stone Producers," by John F. Lane, Gall, Lane, and Howe, Washington, D.C., General Counsel, N.C.S.A.; "A Public Relations Program" by William P. Foss, III, president, New York Trap Rock Corp., New York, N.Y., and "Construction Features of the 1953 Indiana Test Road," consisting of two parts, (A) Rigid Type Pavement and (B) Flexible Type Pavement, delivered by W. T. Spender, soils engineer of materials and tests, Indiana State Highway Commission.

The evening program will include the reception and banquet in the grand ball room of the hotel. The banquet address, "Behind and Beyond Today," will be presented by Jeff Williams, philosopher and humorist of international fame.

N.A.L.I. Program

THE NATIONAL AGRICULTURAL LIMESTONE INSTITUTE annual convention will be held in the Blackstone Hotel, Chicago, on February 19-20. Members of the Executive Committee will meet on February 17, and the Board of Directors on February 18, for a full day session. Details of the convention program follow:

Friday, February 19

Convention opens with a showing of the new U.S. Department of Agriculture film, "Grass," depicting grassland farming. A welcome address delivered by President K. K. Kinsey of Concrete Materials Co., will be fol-

(Continued on page 181)

TOOLS

of tremendous strength and durability to STEP-UP production of aggregates in quarry, at ledge, sand or gravel bed

GRUENDLER of ST. LOUIS

... Offers most versatile line of **CRUSHERS and PORTABLE CRUSHING and SCREENING PLANTS** for around-the-clock trouble-free service



CENTER-FEED HAMMER MILLS
for high production of
Stone, Sand and Ag-Stone

CRUSHER ENGINEERS

"Since 1885"



GRUENDLER

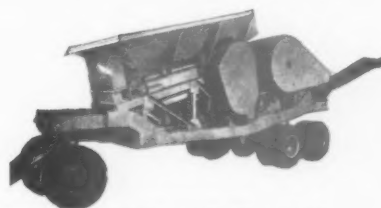
CRUSHER and PULVERIZER CO. • ST. LOUIS 6, MISSOURI



PORTABLE CRUSHING PLANT FOR AG-STONE AND ROAD ROCK



PORTABLE GRAVEL PLANT



PORTABLE PRIMARY CRUSHING PLANT

Large Primary Jaw Crushers in final assembly (below)



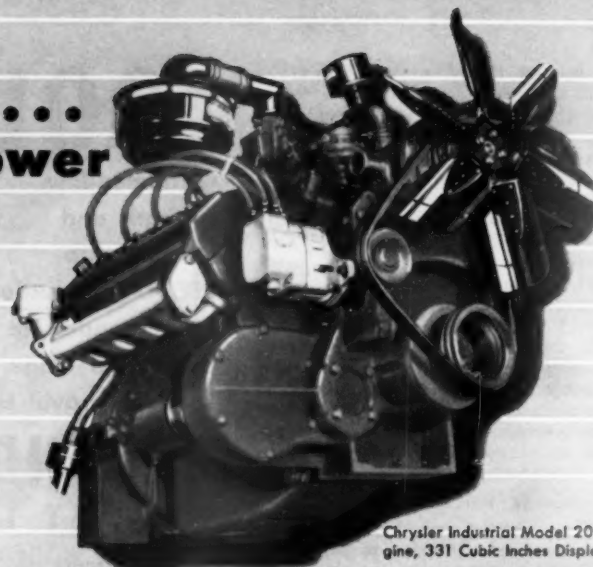
Manufacturers of

JAW CRUSHERS, ROLL CRUSHERS, HAMMER MILLS, FEEDERS, SCREENS, BINS, ELEVATORS, CONVEYORS, STATIONARY AND PORTABLE ROCK AND GRAVEL CRUSHING AND SCREENING PLANTS. Write DEPT. RP-1 for Bulletin.

**For greater PAY
in your PAYloads...
specify *CHRYSLER* power**

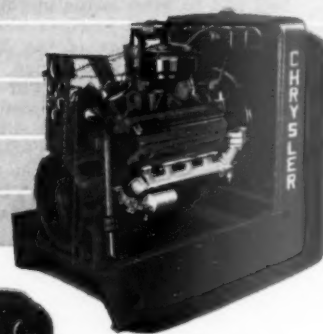


Chrysler Industrial Model 16 Engine,
265 Cubic Inches Displacement.



Chrysler Industrial Model 20 V-8 En-
gine, 331 Cubic Inches Displacement.

Chrysler Open Power Units include the complete engine, skid base, radiator and grille, instruments and instrument panel, flywheel and flywheel housing. (Pictured is V-8 Open Power Unit, which also includes a twenty-five gallon fuel tank.)



There are ten Chrysler Industrial Engines and Power Units, from 217 cubic inches to 413 cubic inches displacement. All of them operate with gasoline, natural gas or L-P gas fuels.

True to the Chrysler tradition, these engines, both In-line 6 and V-8, are among the most advanced design, best engineered and most powerful engines available today in their power ranges. Yet, thanks to famed Chrysler Research, they are constructed of lightweight, highly alloyed steels and allow amazing horsepower to weight ratios.

They are, therefore, ideal engines for most any equipment, regardless of size or silhouette. Let our nearest dealer give you more details, you'll be agreeably surprised to know how inexpensive Chrysler Power—equipped to meet your specifications—is . . . that's because Chrysler production facilities and manufacturing know-how allow us to custom-equip engines and make them available at mass-production prices.

Install Chrysler with confidence. Our nationwide dealer organization assures you good service and fast parts availability. If you prefer, write us: **Dept. 121, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.**

CHRYSLER
Industrial Engines

HORSEPOWER



WITH A PEDIGREE



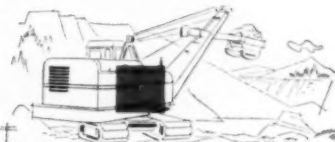
Chrysler Enclosed Power Units have the complete engine, instruments, instrument panel, skid base, fuel tank, radiator and grille, as well as fully enclosing sheet metal—side panels and hood top panel.

Street Paving Machine—
powered with Chrysler
Industrial Engine.



Farm Combine—
powered with Chrysler
Industrial Engine.

One-Half Yard Shovel—
powered with Chrysler
Industrial Engine.



Fork Truck—
powered with Chrysler
Industrial Engine.

N.A.L.I. Program

(Continued from page 179)

lowed by reports of the treasurer, Alvin R. Armbrust, and committee chairman, audit and finance, C. A. Munz; membership, Leonard S. Fry; legislative, John M. Deely; percentage depletion, H. C. Krause; and promotion, W. E. Stone. The executive secretary, Robert M. Koch, also will give his report.

At the greeting luncheon, Director J. E. Ott, Wallace Stone Co., presiding, will introduce Charles E. Irving, professor of Speech and Communicating Skills at Michigan State College, whose subject will be, "Operation Twilight."

The afternoon session opens with John M. Deely, vice-president, Lee Lime Corp., Lee, Mass., meeting with members of five regional groups to nominate directors and five regional vice-presidents. A paper, "The Importance of Lime in a Long Time Pro-

gram of Soil Conservation and Fertility Maintenance," will be delivered by Professor C. J. Chapman, extension specialist in soils at the University of Wisconsin. Reports of the Nominating and Resolutions Committees will follow. The evening program will include cocktails, buffet supper and dancing.

Saturday, February 20

The newly-elected Board of Directors will have a breakfast meeting. The general session will open with "Grasslands Farming," a March of Time film.

The panel on Operations, with Leo L. Davis, chairman, Highland Stone Division, New York Coal Sales Co., Chillicothe, Ohio, will comprise M. R. Ackland, Stoneridge Limestone Co., Rochelle, Ill., C. E. Hogeboom, Consumers Co., Chicago, Ill., and Rollie Schneckloth, High Test Lime Quarry, McCausland, Iowa.

The luncheon at which Director Earl L. Heckathorn, Stuntz-Yeoman Co., Delphi, Ind., presides, will introduce Dixon I. Harder, Farm news director of the Prairie Farmer Station WLS, whose address will be, "Promotions Pay Profits."

In the afternoon session, a panel led by chairman, Russell W. Hunt, Southwest Lime Co., Neosho, Mo., and including Charles Coburn, Waukesha Lime & Stone Co., Waukesha, Wis., William D. Dillon, Dillon Stone Co., Columbus Junction, Iowa, and Lynn Stewart, Meshberger Stone Co., Columbus, Ind., will present for discussion, "What I Have Done to Promote the Sale of Aglime to Offset the Reduction in the ACP."

The annual banquet for members and guests, with nationally known after-dinner speaker, Charles M. Hanna, having for his subject, "Mind Your Own Business," will conclude the convention.

Exhibits of Equipment at Conventions

INFORMATION and products to be displayed at the exhibitors' booths are given in the following list. If an asterisk (*) appears before the company name it will indicate the exhibit to be a part of the National Crushed Stone Association. Company names having no symbol indicate the display will appear at the National Sand and Gravel and the National Ready Mixed Concrete Associations combined exhibition. A double asterisk (**) signifies that the company will exhibit at both conventions.

**Allis-Chalmers Manufacturing Co.

Booth 49

An operating 5- x 12-ft. "Rip-Flo" vibrating screen with "Thermo-Deck" heating unit, an operating "Hydro-cone" cut-away crusher model and other small apparatus items: "Tex-rope" drive equipment and controls, Translite grinding mill display and an HD-5 crawler tractor.

*Atlas Powder Co.

Booth 70

Three separate motion picture projectors showing Rockmaster millisecond delay quarry blasting and feature picture, "The Inside Story."

**American Manganese Steel Division, American Brake Shoe Co.

Booth 20

New design dredge pump of Amsco manganese steel. Display of welding products, featuring a ¾-cu. yd. two-piece plug-welded all-manganese cast steel power shovel dipper.

Autolene Lubricants Co.

Booth 108

A full series of booklets, pamphlets and technical data. A display of Protex air-entraining agent dispensers and new improved Protex air meter.

Baker-Lull Corp.

Booth 36

The new Baker-Lull four-wheel drive Shovel loader.

**Baldwin-Lima-Hamilton Corp.,

Construction Equipment Division

Booths 41 and 107

**Barber-Greene Co.

Booth 48

Featuring standardized Barber-Greene components—enclosed self-contained head drive. Display of Standard carriers and scale model of Barber-Greene model 543 bucket aggregate loader.

Blaw-Knox Equipment Division,

Blaw-Knox Co.

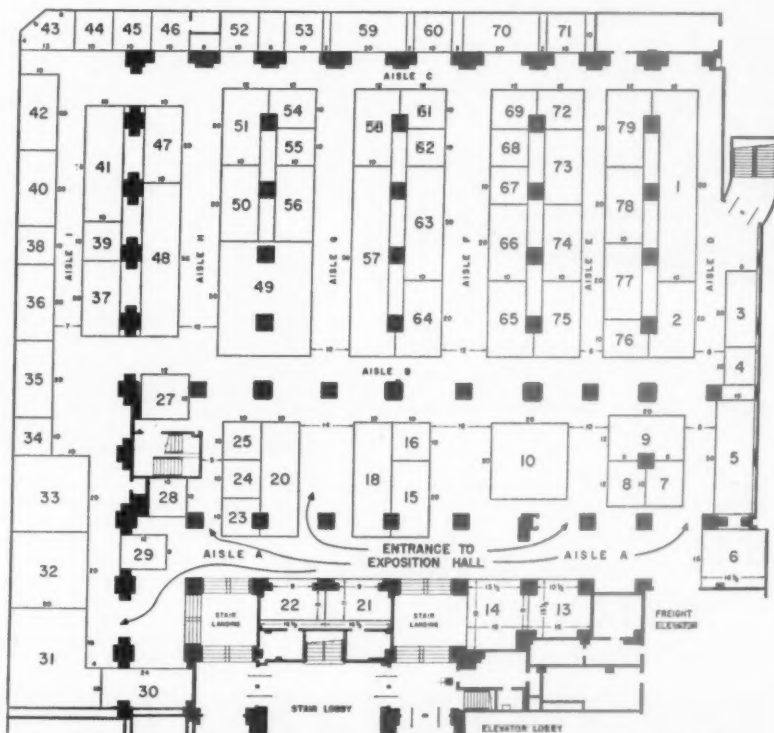
Booth 69

New Hi-Boy truck mixer, 5½-cu. yd. capacity, photographs of batcher and bin installations for transit mix concrete operations.

**Bucyrus-Erie Co.

Booths 10-211

A scale model—6-cu. yd. 150-B electric shovel performing all shovel functions—hoist, swing, crowd, retract and propel.



Layout of booths at Manufacturers Division Exposition, National Crushed Stone Association

****The Buda Co.** Booth 27
Three pieces of equipment—6DA-844 power unit, 6DA-516 diesel engine and BD-15A3 diesel electric generator.

L. Burmeister Co. Booth 217
Translite photos of Burmeister plants and a model plant.

Butler Bin Co. Booth 22
A model of a typical cement handling set-up, a model high production portable transit mix plant, and a model central mixing plant with material handling equipment for cement and aggregate.

Calcium Chloride Institute Booth 221
Illustrations depicting the use of calcium chloride in the ready-mixed concrete field and literature.

***Cape Ann Anchor and Forge Co.** Booth 71
Quarry mural showing full-scale Cape Ann drop ball model in 3D.

****Caterpillar Tractor Co.** Booth 33
Cutaway model of a Caterpillar D318 engine and posters and photos of engines, shovels and tractors working in rock products fields.

Chain Belt Co. Booth 34
Showing a Rex Moto-Mixer truck mounted.

Chicago Fly Ash Co. Booth 101
Photographic display and diagrammatic sketch of fly ash production.

Cleaver-Brooks Co. Booth 66
Featuring the 80-hp. self-contained boiler and return system.

Concrete Transport Mixer Co. Booth 51
Model 45 Rocket revolving drum mixer and Hi-Lo revolving-blade truck mixer.

Construction Machinery Co. Booth 63
New model CMC 4½-cu. yd. Transcrete Mixer, and other informative displays.

Continental Motors Corp. Booth 42
Showing a hydraulic transmission and internal combustion engines.

Cook Bros. Equipment Co. and Challenge Manufacturing Co. Booth 67
Displaying a Challenge Mixer.

****Cross Engineering Co.** Booth 21
Display Hexcren and other perforated steel products.

****Cummins Engine Co.** Booth 5
Two cut-away activated engines, one model NHRS-600 and the JBS-600.

****Deister Machine Co.** Booth 47
Operating a type UHS-2412 4- x 12-ft. double-deck vibrating screen.

Dewey and Almy Chemical Co. Booth 208
Featuring Darex air-entraining agent.

****Diamond Iron Works, Inc.** Booths 77-204
****Eagle Iron Works** Booths 22-213
***Easton Car and Construction Co.** Booth 51

Photographs and literature featuring new Easton gooseneck side-dump trailer to fit the Caterpillar tractor.

***E. I. du Pont de Nemours and Co., Inc.** Booth 52
Showing du Pont blasting agents, condenser discharge, blasting machines and other products for quarry blasting.

****Euclid Division, General Motors Corp.** Booth 2
Featuring rear dump and bottom dump applications.

Flexible Steel Lacing Co. Booth 222
A 19-ft. incline conveyor having a 24-in. troughing belt and demonstrating the application and use of fasteners and belt lacing.

***Frog, Switch and Manufacturing Co.** Booth 7
Gatke Corp. Booth 106

****General Electric Co.** Booth 28
Theme of display will be "Engineered Electrical Systems for the Rock Products Industry" in photo murals, and operating the new Tri-Clad 55 motor and capacitors.

****Gruendler Crusher and Pulverizer Co.** Booths 69-202
Working models of crushing equipment.

****Gulf Oil Co.** Booth 29
Animated display of products and services.

****George Haiss Manufacturing Co., Inc., Div. of Pettibone-Muliken Corp.** Booths 23-26

Hardy Scales Co. Booth 19
****Harnischfeger Corp.** Booth 18
Exhibit the P&H Shovel Magna-

**AUTOMATIC
Continuous Operation
at MINIMUM COST!**

DO you have a large investment tied up in undersized kiln linerrock?

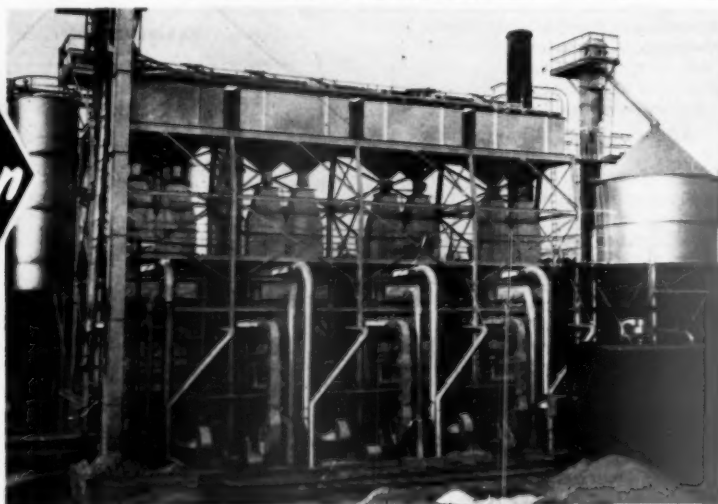
DO you have a need for a lime plant which can be easily and efficiently regulated for a varying market?

DO you want an efficient operation that cuts labor cost in half?

**IF SO . . . THE ELLERNAN
CALCINER is your answer
for calcining small sized material**

THE ELLERNAN CO.

1210 CONTINENTAL BANK BLDG.
SALT LAKE CITY, UTAH



A FOUR UNIT INSTALLATION

There are extra dividends available in the operation of your plant when you use Ellernan Calciners for the treating of LIMESTONE, DOLOMITE, PHOSPHATE, CLAY, etc.

The unit preheats, calcines and cools automatically and continuously requiring a minimum of operating labor. Your stock pile represents an investment from a previous operation. An Ellernan Calciner will convert this investment to a profit at a low cost. For details, write or wire . . .



torque, swing clutches on the model 955-A P&H excavator, the P&H 3-cylinder diesel engine, and the P&H Zip-Lift hoist which will be in operation. First showing of the WN-250 gas-driven welder.

****Harristeel Products Co.**

Booths 16-26

Heltzel Steel Form & Iron Co.

Booth 216

****Hendrick Manufacturing Co.**

Booth 56

Photographs and samples of various types of screen perforations.

Hercules Motors Corp. Booth 70

Two (2) gasoline engines, two (2) diesel engines and four (4) gasoline power units. The diesel model DIX 4D.

****Hewitt-Robins, Inc.** Booth 57

The Frank G. Hough Co. Booth 65
Pictures and descriptive literature.

Imperial Construction Equipment Co.
Booth 44

A 5½-cu. yd. transit mixer, truck mounted.

International Business Machine Corp.
Booth 103

Three machines—fully automatic and consecutive spacing attendance time recorder, job cost recorder and time stamps.

****Iowa Manufacturing Co.** Booth 50

Display new line of motorized head pulleys and screens. Will feature the improved double impeller impact breaker, and model screens and crushers.

The Jaeger Machine Co. Booth 38
5½-cu. yd. Mix Plus truck mixer and cut-away units showing construction and operating mechanism.

***The Jeffrey Manufacturing Co.**
Booth 40

The No. 1BH electric vibrating feeder runaround, a 20 x 12 swing hammer pulverizer, and several belt idlers.

The C. S. Johnson Co. Booth 32
Cement batcher and water batcher.

***Joy Manufacturing Co.** Booth 9
The new Joy TM-500 drill and the Joy Challenger drill TM-500.

***Kennedy-Van Saun Manufacturing and Engineering Corp.** Booth 8
Photographs of new lime hydrator, crushers and plant installation.

****Kensington Steel Co.** Booth 13
Showing Oro-Alloyed manganese steel replacement parts for crawler treads, bucket teeth, jaw plates, hammers, grate bars, complete rail links assembled with grouser plates, chain and renewable tooth sprockets and buckets.

****Koehring Co.** Booth 32
Displaying a Koehring Dumptor.

****LeRoi Co.** Booth 1

****Link-Belt Co.** Booths 65-11
"Exploded" display of Series 100 idler will show each component. Illustrations of elevator chains, sprockets, ball and roller bearings.

Link-Belt Speeder Corp. Booth 59
Working scale model K-375 2-cu. yd. combination shovel, clamshell and dragline—working "Speed-O-Matic," hydraulic control.

SYNTRON

"Vibra-Flow"

VIBRATORY FEEDERS—

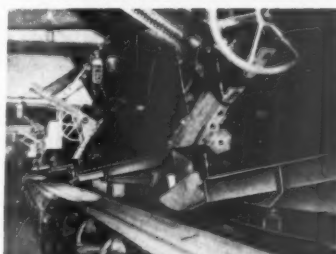
PROVIDE



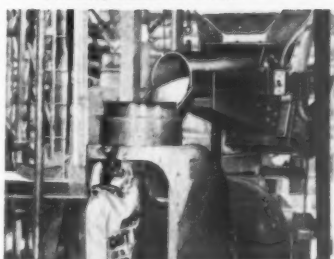
Feeding Limestone



Feeding-Drying a Fine Material



Feeding Sinter in a Mill



Feeding Fruit to Bag Filler

● **INSTANT CONTROL** of rate of flow from pounds to hundreds of tons per hour.

● **EFFICIENT**, low cost operation—due to electromagnetic vibratory principle—using no motors, gears, belts, sprockets, etc.

● **FLEXIBILITY** in handling most bulk materials—hot or cold, dry or damp, fine or coarse.

● **ADAPTABILITY** to your present processing system with a minimum of change.

● **A VARIETY** of sizes and styles—light tonnage feeders with capacities from one to ten tons per hour—or heavy tonnage feeders with capacities up to hundreds of tons per hour—with flat pan, tubular, grizzly, screening and many other types of troughs.

● **SYNTRON** engineers, with years of experience in material handling problems, are ready to assist you by recommending the proper Syntron Feeder for your problem.

Write
for
Catalog
Data

SYNTRON COMPANY

450 Lexington Avenue

Homer City, Penna.

Booth Exhibits

(Continued from page 183)

Littleford Bros., Inc. Booth 64
1000-lb. "Kwik-Steam," generator with modulating control.

***Ludlow-Saylor Wire Cloth Co.** Booths 62-205
Samples of abrasion-resisting Super-Loy woven wire screens and wire cloth—fine wire cloth mesh 40, 60, 80, 100, 200, 300 and 400.

***MacLanahan and Stone Corp.** Booth 4
10-ft. working model of new screw washer—classifier and small model single roll crushers.

Mack Motor Truck Corp. Booth 68

***The Johnson March Co.** Booth 55

***Marion Power Shovel Co.** Booths 75-209
The Master Builders Co. Booths 203-210

Featuring Pozzolith, cement dispersing agent, and a "Communications Center," bulletin board, maps and directory of the city and convention.

W. R. Meadows, Inc. Booth 110
Expansion joints, adjunct paving accessories, concrete curing compound and rubber asphalt joint seal.

Morris Machine Works Booth 10
A 2-in. type R slurry pump and photographs of other sand and gravel and rock products equipment.

***Murphy Diesel Co.** Booth 31
Showing 33 colored slide photographs of Murphy diesel installations and sectional cut-aways of 100-kw. generator set—one 50-kw. Mech-Elec. and one 4-cylinder power unit.

***Nordberg Manufacturing Co.** Booths 73-12
Featuring new Nordberg Gyradisc and complete lime, crushing pulverizing and screening machinery, Symons cone crusher, vibrating screens and grizzlies, V-screens, ballmills and primary gyratory crushers.

***Northwest Engineering Co.** Booths 63-109
Photographs of equipment operating in the rock products field.

***The Northern Blower Co.** Booth 61

***Pettibone-Mulliken Corp.** Booth 25
Scale replica of Universal primary portable crushing plant—546-P and model Universal jaw and twin dual roll combination.

Pick Manufacturing Co. Booth 220

***Pioneering Engineering Works, Inc.** Booth 14

***Pit & Quarry** Booths 38-113
Publishers of *Pit & Quarry* magazine.

***Productive Equipment Corp.** Booth 6

Two bearing adjustable positive eccentric Gyroset screen in two-deck suspended type—4- x 10-ft.

Quaker Rubber Corporation Booth 201

Operating model conveyor system with moving belts, shock impact idlers, and chutes.

***Radio Corporation of America** Booth 60
Operating demonstration of the Universal electronic metal detector.

Rockform Corp. Booth 104
Panels, hardware and accessories, and brochures.

***Rock Products** Booths 34-102
Publishers of ROCK PRODUCTS and CONCRETE PRODUCTS.

Sauerman Bros, Inc. Booth 212
Working models of the drag scraper, the slack line cableway and photographs.

Scientific Concrete Service Corp. Booth 207
Special Toledo concrete batching scales.

***Screen Equipment Co., Inc.** Booth 3
A 3- x 8-ft. double deck vibrating screen.

Servicised Products Corp. Booth 114
Easel type pictorial display.

Sika Chemical Corp. Booth 219
Featuring Plastiment and showing an automatic metering pump.

Simplex Forms System, Inc. Booth 112

***Simplicity Engineering Co.** Booth 58
Model BG—4- x 8-ft. triple deck screen and 24-in. x 8-ft. bin feeder.

***SKF Industries, Inc.** Booth 64
Two products: C-type spherical roller bearing and SY-Pillow blocks.

***Smith Engineering Works** Booth 15
Featuring cut-away model Telsmith fine crushing Gyrasphere, model jaw crusher, heavy duty apron feeder, and Vibro-King screen.

The T. L. Smith Co. Booth 61
Solvay Process Division Booth 206
Samples of Flake calcium chloride, literature and color slides.

***Stedman Foundry and Machine Co., Inc.** Booth 35-9
Working models of single cage reduction crushers and 4-row cage reduction crusher.

***Stephens-Adamson Manufacturing Co.** Booths 78-16
Featuring a new conveyor belt, Amsco manganese steel feeder and a full line of standard industrial products.

***W. O. and M. W. Talcott, Inc.** Booth 46
Complete line of belt fasteners for belt and patching worn or torn belts.

***Taylor-Wharton Iron & Steel Co.** Booths 76-17
Castings.

***Thew Shovel Co.** Booths 37-215
Colored Translites and models.

***Travel Drill Co.** Booth 72

***Traylor Engineering & Manufacturing Co.** Booth 66
Photographic display of machinery.

***The Torrington Co., Bantam Bearing Division** Booth 74
A development in radial roller bearing design will be displayed.

***The W. S. Tyler Co.** Booth 30
4- x 10-ft. Ty-Rock vibrating screen, samples of Tyler woven wire screen cloth, Ro-Tap testing sieve shaker and Tyler standard screen scale testing sieves.

Union Wire Rope Corp. Booth 218
Eleven samples of "Tuffy" slings.

***Unit Crane & Shovel Corp.** Booth 79
Working model of the Unit one-piece gear case with operating clutches, independent live boom hoist and worm drive. Literature and Translite colored photos.

***The Universal Engineering Corp.** Booth 24
Scale model of the Universal 2036/546P primary crushing plant.

Western Machinery Co. Booth 60
Operating model Wemco Mobil-Mill, full size Wemco, solids pump, 24-in. Wemco sand preparation machine and laboratory Wemco attrition machine in operation.

***Delbert Wheeler** Booth 53
Two models of testing vibrators for screen analysis, 8-in. for fines and 12-in. for coarse. A new patented low-head vibrating model to produce five sizes.

The White Motor Co. Booth 62
Model WC-2264 conventional 6-wheel truck and Model WC-2284 "Centipede," 8-wheel unit. Both with mixers mounted.

Charles E. Wood Co. Booth 52
Two working models of Auto-Vortex cone classifiers and one Auto-Vortex bowl classifier, and stereo pictures.

Worthington Corp. Booth 7
Two 4½-cu. yd. new model Hi-Up truck mixers. Model LC closed end and Model OXX Lo open end hopper.

Asbestos Mining Agreement

UNITED ASBESTOS CORP., Montreal, Quebec, and Lake Asbestos of Quebec, Ltd., a subsidiary of American Smelting and Refining Co., recently signed an agreement by which Lake Asbestos agreed to equip United's Black Lake asbestos properties.

At the same time, United Asbestos Corp. applied to the Quebec government for an Order-in-Council, authorizing the draining of Black Lake and construction of dams. Lake Asbestos, under the agreement, will not be required to provide the major expenditures or perform its other obligations until the Order-in-Council has been passed.

A. B. Davidson, president, United Asbestos Corp., states that actual passing of the Order-in-Council should see an early start on the various operations designed to bring the asbestos deposits into production.

Talc Plant Expansion

GOVERNEUR TALC Co., Gouverneur, N.Y., has announced the completion of its new laboratory center and warehouse which are located adjacent to the company's talc-grinding plant at Balmat, N.Y.

WILFLEY PUMPS

NEW Potash Refining Plants

Feature Both Sand and Acid Pumps by Wilfley

Wilfley pumps were chosen for new potash refining plants in Carlsbad, New Mexico...for efficient, low cost production...for continuous, economical performance without attention.

Wherever installed, these famous pumps—both Sand and Acid—consistently increase production and create substantial dollar savings in power and maintenance.

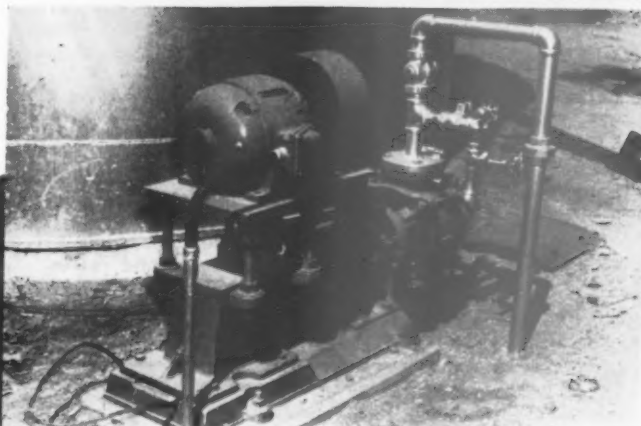
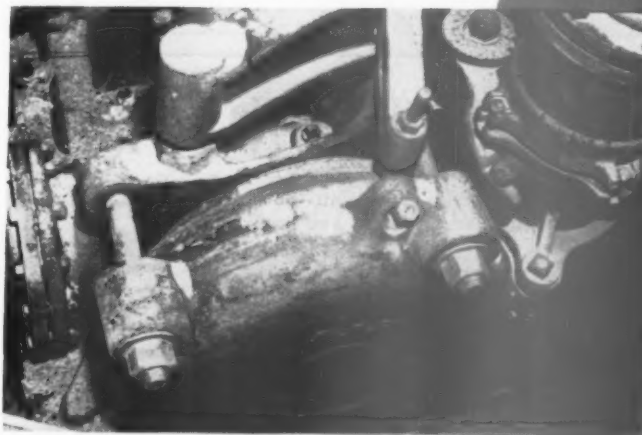
Individual engineering on every application. Write, wire, or phone for complete details.

- Cost-saving efficiency
- Stepped-up production
- Continuous operation without attention
- Minimum replacement of parts
- Designed for simple installation
- Economical pump size for every requirement

Wilfley Sand Pump

"COMPANIONS IN ECONOMICAL OPERATION"

Wilfley Acid Pump



A. R. Wilfley & Sons, Inc.

DENVER, COLORADO, U.S.A. • New York
Office: 1778 Broadway, New York City

OF COURSE...

*the nickel in manganese-nickel steel
helps produce far better results!*



THAT'S WHY
GYRATORY CRUSHERS
REBUILT WITH

MANGANAL

U.S. Patents 1,876,738 - 1,947,167 - 2,021,945

11%-13½% MANGANESE-NICKEL STEEL

ROUND APPLICATOR BARS

Usually outlast new ones!



FREE Send for literature on
speedy and economical repair
of worn equipment.

Mill Depot Stocks: Newark - Wilkes
Barre (Forty-Fort) - Indianapolis -
Minneapolis

STOLZ-SICKLES CO.

SOLE PRODUCERS 92 N. J. RAILROAD AVE. NEWARK, N. J.

NEAREST DISTRIBUTOR
UPON REQUEST

SUGGESTION FOR 1954

Simply get the facts on new
Universal Screens before you buy!

Installing a Universal assures:

1. Dependable screening results
2. Lowest cost per ton
3. Less labor cost
4. A clean, bright product



You can spend
far more for more
complicated screening machinery, but you can't get a better
screening job! Write today for literature and prices.

UNIVERSAL VIBRATING SCREEN CO.

RACINE -- WISCONSIN

Cement Industry Review

(Continued from page 164)

we have sold all the cement that we could manufacture and our area has continued to be a deficit area with out-of-area cement being shipped in.

"2. Our plans call for a continuation of our normal practice as regards additional facilities and replacements.

"3. We expect to be able to ship all the cement that we can manufacture in 1954.

"4. In 1953 about 25 percent of our sales went for housing, 55 percent to ready-mixed concrete, 6 percent into public works and 12 percent to highways. We might expect to find that for 1954 the amount into housing will shrink somewhat and the percentage to highways will increase considerably, probably going to 20 percent.

"5. As long as we can continue to sell our product without further absorption, we will do so. When and if it becomes necessary to absorb freight in order to be competitive, we will do so.

"6. Our break-even point is such that we are prepared to operate our plants at a reasonable profit on reduced rates of production.

"7. We are continuing with our expansion program, which includes certain features that should effect a reduction in operating costs."

A manufacturer with many plants in the eastern United States:

"1. At the present time we believe that we will face softer markets in 1954 in about half the areas in which we operate.

"We are attempting to strengthen our sales organization on a qualitative basis in order to meet this situation.

"To a minor extent only would we attempt to expand our markets geographically in order to dispose of all our production.

"2. We are planning to continue and even increase our normal expenditures for additional facilities and replacements over the next two years, even though volume may appear to be on the verge of declining.

"3. We expect the volume of our business in 1954 to be equal to or slightly larger than in 1953.

"4. I am not immediately aware of how our sales volume is divided between the categories you mention.

"5. We are prepared to stand more of the cost of transportation of cement in those areas where this practice is considered good business.

"6. As I indicated in paragraph one above, we do not plan to expand our markets geographically to any great extent if thereby we would materially increase the absorbed transportation costs.

"7. We are proceeding with expansion plans as well as paying attention to the reduction of operating costs through installation of improved machinery."

Technical Developments

(Continued from page 156)

climates can do strange things, and very possibly could set off a charge accidentally. Lightning has been blamed for a few cases. In the Rocky Mountain area on a construction job, a premature blast occurred that killed 12 or more persons. At first it was blamed on static, then on lightning.

Drilling

Rotary drills have found extended use. One operator of a relatively large tonnage limestone quarry found that he had more drilling capacity than needed. To keep the drill in operation, he went into contract drilling and has been quite successful. Wagon drills seemed to predominate at some of the quarries, and extensive use of heavier percussion type primary drill rigs was reported. Possibly the most significant advance in secondary drilling is the use of a mobile, rubber-mounted, drill rig (see ROCK PRODUCTS, March, 1953, page 91) that carried an operator on the boom.

Air Conveyors

Air activated conveyors for handling finely ground bulk materials such as portland cement, silica flour, ground limestone, etc., have found extended uses, especially in concrete products plants and ready-mixed concrete operations. These systems of handling material solve the dust and noise problems, and are relatively economical to install. One ready-mixed concrete operation had three operations relatively close and used a single portable compressor to serve all three units.

The major advances technologically in the rock products fields have, in most cases, come from other fields of endeavor. Coal processing brought us the liquid cyclone, the mining industry the heavy-media process and flotation. These "Observations" would not be complete without bringing up the advantages of an interchange of ideas between other types of industries. During March of the past year, (as an example of what can be done), the American Institute of Chemical Engineers met at Beloxi, Miss., and invited the mineral engineering groups to tell them what was going on in their field of operation. Able engineer-speakers from many walks of life in the mining and ore dressing fraternities—including many sales engineer representatives of machinery manufacturers—told the chemists about fine sizing, screening, wet classification, fine grinding, magnetic, high tension and magnetic separation, heavy-media flotation, liquid cyclones, tabling, jigs, spiral concentration and similar subjects.

Some authorities believe that one of the important causes of concrete disintegration can be traced to the free lime that has been liberated in the setting process. They further believe that if some material is available to

(Continued on page 188)

**Moderate cost . . . light on labor
little maintenance . . . BUT**



Crescent Scraper of 5-cu. yd. capacity—rigged for gravity return—shown returning to excavation point in the pit. Ask for Catalog A and Field Report 214.

SAUERMAN EQUIPMENT

Check digging power . . . rate of haul . . . clean dumping. Add labor economy . . . low upkeep . . . personal safety . . . moderate power consumption. Total up the score . . . you'll choose one of these Sauerman Machines for your operation.

DRAG SCRAPER: best for pit or hill excavation, reclamation or general handling of materials, wet or dry. Serves as rapid, long range conveyor. Sizes $\frac{1}{3}$ to 15 cu. yds.

SLACKLINE CABLEWAY: best for deep digging—especially underwater—and conveying to a high delivery point. Reaches down a hundred feet or more . . . spans up to 1000 ft. . . sizes $\frac{1}{3}$ to $3\frac{1}{2}$ cu. yds.

DRAG SCRAPER STOCKPILER: best for profitable handling of sand and gravel, ores and chemicals. Low on first cost, plus economical one-man operation.

CRESCENT SCRAPER ON BOOM MACHINE: best for increasing the work capacity of any boom machine on backfilling and grading jobs. When scraper is used with track cable and trolley, machine range is greatly extended.

Call on Sauerman's experienced engineers for the size and type system best suited to your digging, hauling or materials handling requirements. Write for catalog . . . ask for idea-packed Sauerman News.

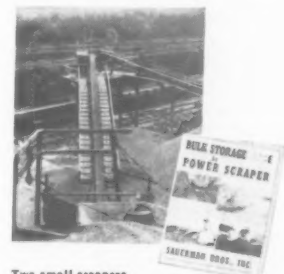
SAUERMAN BROS., Inc.
530 S. Clinton St., Chicago 7, Ill.



SAUERMAN BROS., INC.



Slackline cableway performs difficult excavation of non-caving material from deep pit. 70% rock and 30% colloidal sand posed tough digging job. Ask for Catalog C and Field Report 216.



Two small scrapers reclaim different sizes of crushed stone from adjoining piles to belt conveyors delivering to a common hopper used to load cars with straight or mixed sizes. Ask for Catalog E.



Crescent on boom machine dumps large load of wet peat. Bucket is gravity returned on track cable to digging point. Ask for Catalog J-1 and Field Report 219.

"set" this free lime is incorporated in the mix that advantages occur. Silica flour is one such material that is finding use in such cases. It is being used by concrete block manufacturers who use high pressure steam curing systems. In these cases it is being used as a replacement for portland cement in as high a ratio as 40 percent silica flour and 60 percent portland cement. They report satisfactory compression strengths after overnight curing cycles using high steam pressures. This same reaction possibly takes place in normal monolithic concrete mixes but to a slower degree.

Several of the newer concrete dams in the West used a similar technique for this, and for other reasons. Davis dam used a shale that was ground to about the fineness of portland cement. It replaced one bag of cement on a four-bag mix; i.e., three cement to one of the shale. It was said to contain around 25 percent opalite, and was calcined to about 1500 deg. F. to make the material more active. For Falcon dam on the Rio Grande, a locally made pozzolan of a siliceous volcanic ash was used. These silicas in both dams served a double purpose; (1) provided silica to set the free lime liberated, and (2) the material was supposed to react with the alkalis in the portland cement before the concrete set, thereby obviating any detrimental features due to the so-called "reactive aggregates." Hungry Horse dam used fly ash as a replacement for portland cement.

Concrete Products

In the concrete products field, the most spectacular trend of the year was the wider adoption of high pressure steam curing. High pressure steam curing of concrete block possibly got its start from the sand-lime brick industry. Using this system, sand and lime were pressed into a brick and cured in autoclaves under high steam pressures. Several concrete block manufacturers adopted the idea for it made a unit with less expansion and contraction properties. The year 1953 seemed to be the critical year or "year of change," for three large and very active companies adopted the technique. One in Buffalo, one in Washington, D. C. and a third is reported to be entering that field in the Boston area. It is noteworthy that some of the heads of these companies are past presidents of N.C.M.A. The installation cost is relatively high. The Buffalo operation will run close to half a million dollars.

A second important advance during the year was the use of unloaders for concrete masonry units. Two types that we have seen recently used a power-driven sling arrangement to unload cubed block; one was described in the July, 1953, issue, page 136. The different types of units cost in the \$2000 to \$4500 range. Several new types of "slide-off" unloaders are on the market.

Natural gas, or fuel oil, plus automatically fired steam boilers have been installed in the heart of the coal mining areas, and in some instances have cut the fuel bill in half. One new concrete masonry plant being built in the East by an established operator will use continuous mixers. The newer plants all used high capacity machines vibrating under pressure. One manufacturer in the mid-south has developed a machine for making reinforced concrete posts. An artificial lightweight aggregate is used, and it was said the posts of conventional length sold for one dollar. The use of forked lift trucks, capable of picking up two racks at a time, was seen in a Western plant. This "doubling up" cut the labor and maintenance costs for lift trucks almost in half. The use of pre-mixed, dry concrete in paper bags of small capacity for the occasional user has found an important market.

Labor Relations Trends

(Continued from page 79)

"I do not believe that we have established the type of floor under our national wage structure that a prosperous America wants and must have if so substantial a number of our working men and working women are without the safeguard of minimum wages. Not only is their position dangerously insecure, but as long as such a condition exists it imperils the economic status of those workers who are lucky enough to be covered by the law or are represented by strong unions in profitable industries. With almost two-thirds of working America unsupported by our minimum wage statute, the ability of too many of our people to save and buy the things they need and want is seriously impaired.

"I am deeply concerned to see that there is in America an ever expanding demand for the consumer goods which are made in the plants in which you and other Americans work.

"I want to tell you here and now that we are doing something about this. There are four avenues of action which we are following:

"(1) We are examining the categories of exemption and exclusion and are exploring the possibility of bringing in additional workers under the coverage of the Act;

"(2) We are doing everything that we can, through the work of the Bureau of Labor Standards and the Women's Bureau, to encourage the development of adequate minimum wage laws in the States;

"(3) We will, through the Wage and Hour and Public Contracts Divisions, intensify the enforcement of the Fair Labor Standards Act; and, finally,

"(4) We are working hard to find ways and means to bring about an increase in the present 75 cents an hour minimum to a more realistic level in keeping with present-day wage levels. We do not yet know

what the level should be. I do know that the CIO platform calls for \$1.25. Just as soon as we come up with our findings, the Department of Labor will make recommendations to the President for action by the Congress."

The weakness of Secretary Mitchell's statement as quoted above is that he apparently assumes everyone who does not come under the law receives substandard pay. Of course, such is not the fact. The reason many local producers object to the law is that it so complicates their record and book-keeping, and provides too many loopholes for controversies with their employees—not that they object to paying far more than the minimum hourly wage established in the law.

Taft-Hartley Act Position

Secretary Mitchell in his address to the annual convention of the C.I.O. labor bosses, which was received with obvious lack of enthusiasm, even with disdain, said in part:

"I can tell you that no final conclusions have been reached on what the President will recommend to the Congress on this subject [revision of the Taft-Hartley Act]. There will be such recommendations. They will contemplate amendments to the statute. What will be recommended is still being discussed. There will be changes. If these are realized we will have made great strides forward. Let's be fair. The previous Administration which was elected on the issue of Taft-Hartley failed to make significant changes even though it had great majorities in Congress which this Administration has not.

"Now, the Taft-Hartley Act and the way it is administered in essence establish the policy of the Government with respect to labor relations. It is important to remember that in a democracy policy is always a compromise with perfection. It sometimes falls short of solution.

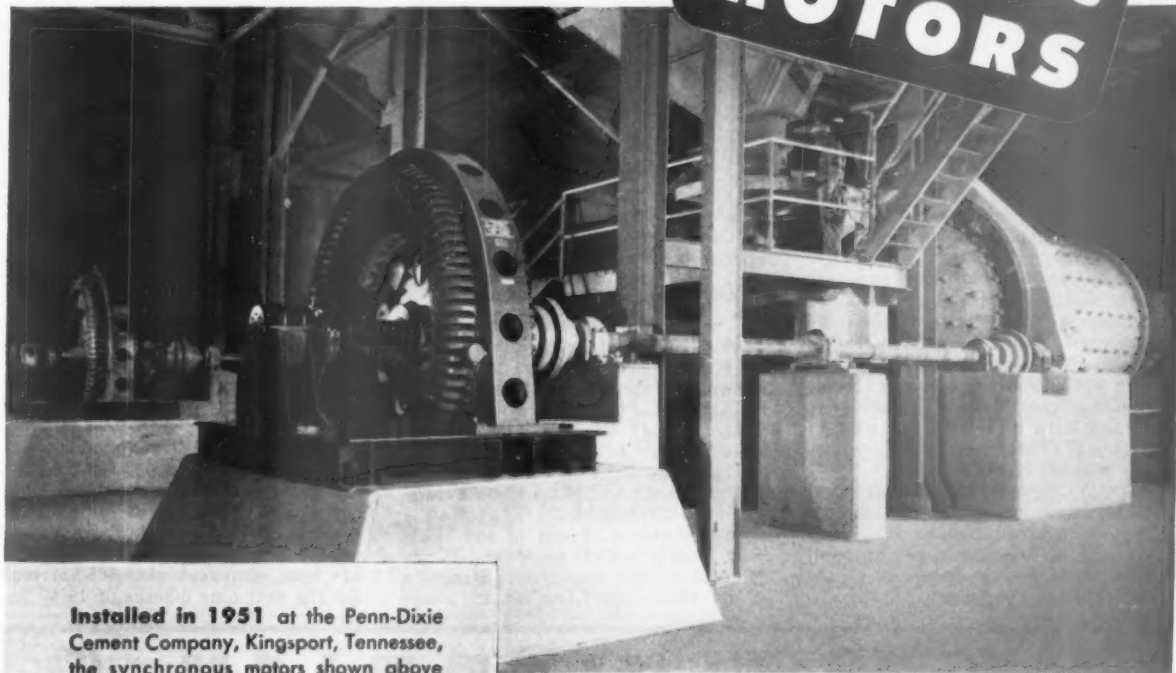
"No law is perfect for any one institution. The controls regulating the stock exchange, the laws relating to the formation of trusts make some people pretty unhappy. The union movement itself is not united on many issues; public power, the St. Lawrence Waterway, tariffs, trade agreements, and on specific amendments to the Taft-Hartley Act itself. Our views on any issue depend on how our spectacles are ground. They are ground to conform with our immediate interests and blur our vision to what is utter clarity to others.

"If we can agree to start from the point of realism—which is that the Taft-Hartley Act in many of its features is sound, fair and just—and preclude further talk of repeal of the Act, we will then jointly concentrate on those features of the Act which are really dangerous to labor, really loaded, really unfair. I am for the removal of those unfair features. The President is for their removal. I think a majority of the Congress will be

(Continued on page 190)

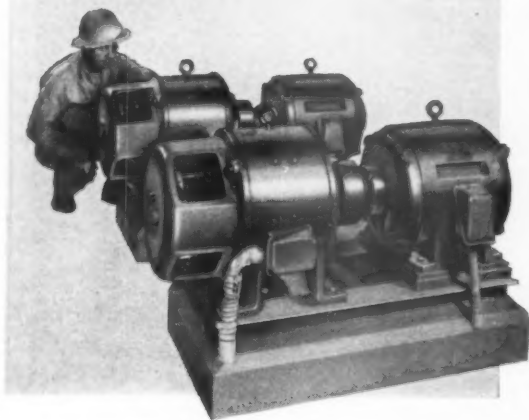
Built for a Long Grind

ALLIS-CHALMERS
**Synchronous
MOTORS**



Installed in 1951 at the Penn-Dixie Cement Company, Kingsport, Tennessee, the synchronous motors shown above are each rated 350 hp, 80% pf, 440 volts, 180 rpm.

The 8 by 12-ft ball mill preliminators were furnished by Allis-Chalmers, along with the 15-kw m-g sets (shown below) which supply the excitation for the grinding mill motors.



Here are three reasons why Allis-Chalmers grinding mill motors help keep your mills grinding economically year after year:

Each motor is engineered for its job. A-C's half century of experience building electrical equipment and processing machinery assures torque and other operating characteristics tailored to the individual installation requirements.

Time-proved basic design features contribute to long life and trouble-free operation. These are described in detail in Bulletin 05B7648.

Adequate manufacturing, inspection and testing facilities insure that each motor will be built exactly as specified.

For more information on motors that minimize maintenance and down time, call in your A-C representative, or write for illustrated Bulletin 05B7648. Allis-Chalmers, Milwaukee 1, Wisconsin.

A-4088

ALLIS-CHALMERS



for their removal. What those features are in precise detail must be worked out in conference and in compromise. And in these coming legislative deliberations, you know there will be no magic in numbers—19 amendments are no more mystic than 15, 1, or 29.

"Now in my dealings with you on this matter I can pledge you a sympathetic audience, and open mind, and my advice. I can also promise you honest, straight dealing. I will listen to all parties who have ideas on this issue.

"To the extent that we can agree, I will be happy to work with you in achieving our common objective. To the extent that we disagree, we will try to work out a way of agreement.

"As for myself I will tell you here and now the criteria I will use in determining my position on every recommendation proposed.

"I am opposed to any proposal which would leave the Government powerless to deal with national emergency strikes.

"I am opposed to any proposal which would make it easier for Communists or racketeers to control labor organizations, and I am opposed to treating the Communist problem solely as a labor union problem.

"I am opposed to any proposal which encourages unions or union officials to be irresponsible.

"I am also opposed to any proposal through which employees could escape their obligation to bargain collectively.

"I am opposed to any proposal which would make Federal law a device for breaking or undermining unions.

"I am opposed to any proposal which will have an undeserved punitive effect, whether on unions, employees, or the individual worker.

"I am opposed to any measure which in essence defeats the demonstrated will and desires of the majority of the working people.

"On the other hand, I am prepared to endorse and support every reasonable proposal for amending the Taft-Hartley Act which will meet these standards:

"Minimize the amount of government intervention in labor disputes;

"Maximize the incentives for parties in a dispute to settle it themselves;

"Contribute to more peaceful and mature labor relations in America."

6000-Day Safety Record

MEDUSA PORTLAND CEMENT Co.'s York, Penn., plant recently passed its 6000th consecutive day without a lost-time accident, as recently reported in *Accident Prevention Magazine*, a publication of the Portland Cement Association.

The Medusa plant, which has not had a lost-time accident since February 20, 1937, enjoys the longest accident-free record of any of the 1000-Day Club's active members. E. E. Whitlatch, plant manager of Medusa's York, Penn., plant, serves as presi-

dent of the 1000-Day Club, an honor derived from his plant's outstanding safety record.

Other outstanding members of the 1000-Day Club include Lehigh Portland Cement Co.'s Union Bridge, Md., plant, which passed the 3000-day mark over a year ago, and Canada Cement Co., Ltd.'s plant at Hull, P. Q., which passed the 3000-day mark last June. Penn-Dixie Cement Corp.'s Clinchfield, Ga., plant recently terminated its accident-free run at 3029 consecutive safe days. Lone Star Cement Corp.'s Bonner Springs, Kan., plant re-entered active membership in the club last summer.

Sand-Lime Brick

ACCORDING to a recent report in *Limeographs*, the 1952 production of sand-lime brick in the Federal German Republic totaled about 1,000,000,000 units. This production consumed approximately 300,000 tons of lime during the year, compared with about 24,000 tons of lime consumed in the United States for sand-lime brick manufacture.

Canadian Asbestos

SHIPMENTS OF ASBESTOS from Canadian mines totaled 682,149 tons for the first nine months of 1953, compared with 692,176 tons for the corresponding 1952 period. Exports during the 1953 period amounted to 648,518 tons, compared with 665,521 tons for the first nine months of 1952.

FOR ACCURATE FEED CONTROL BY WEIGHT MERRICK IS TOPS

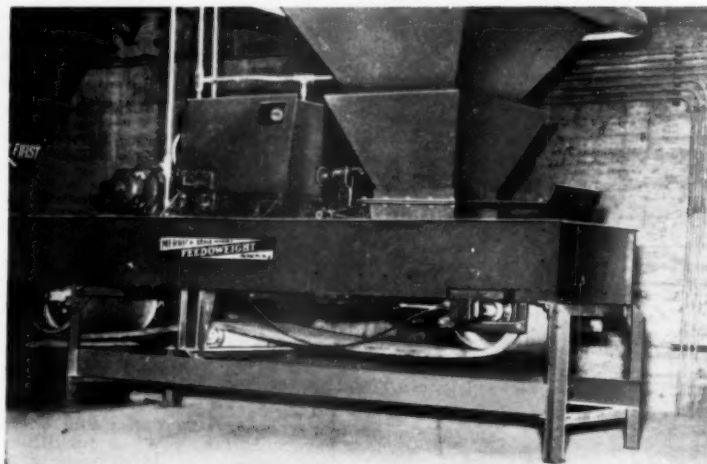
CEMENT PLANTS ON FIVE CONTINENTS RELY ON MERRICK

FEEDOWEIGHTS*

Yes! Better than 50% of the Major Cement Producers in the United States rely on Merrick Feedoweights to blend, proportion and feed to process, by weight, such cement components as Clinker, Gypsum, Shale, etc., to produce high uniformity of product.

The Feedoweight is also extensively used in Cement and Ore Processing Plants in Canada, Mexico, South America, The Middle East, Africa, China and the Scandinavian Countries of Europe.

Investigate the Merrick Weightometer® for Continuous and Automatic Weighing on Belt Conveyors.



MERRICK SCALE MFG. CO.

180 AUTUMN STREET • PASSAIC, NEW JERSEY

We solicit your inquiries

Bulletins 253 and 375
available on request

*Reg. U. S. Patent Office

FINANCIAL

RECENT DIVIDENDS		
American Rock Wool Corp.	\$.020	Sept. 10
Alpha Portland Cement Co.	0.50	Sept. 10
Arundel Corp., The	0.30	Oct. 1
Basic Refractories, Inc.—Q.	0.25	Sept. 30
Basic Refractories, Inc.—pf.—Q.	1.43½	Oct. 1
Bessemer Limestone & Cement Co., The	0.50	Oct. 1
Bessemer Limestone & Cement Co., The—pf.—Q.	0.50	Oct. 1
Blue Diamond Corp.—Q.	0.15	Sept. 15
Canada Cement Co., Ltd.—6½% pf.—Q.	0.32½	Sept. 21
Canadian Crushed & Cut Stone, Ltd.—6% pf.	1.50	July 2
Colonial Sand & Stone Co., Inc.	0.05	Sept. 30
Consolidated Cement Corp.—C.I.A.	1.05	Sept. 30
Consumers Co.—Q.	0.75	Sept. 15
Dragon Cement Co., Inc.—Q.	0.50	Sept. 19
Dragon Cement Co., Inc.—E.	0.50	Sept. 19
General Portland Cement Co.	0.50	Sept. 30
Giant Portland Cement Co.—stk.	2%	Oct. 1
Gypsum Lime & Alabastine, Canada, Ltd.	0.50	Sept. 1
Gypsum Lime & Alabastine, Canada, Ltd.	0.50	Dec. 1
Hercules Cement Corp.—Q.	0.25	Oct. 1
Ideal Cement Co.—Q.	0.50	Sept. 30
Lehigh Portland Cement Co.—Q.	0.30	Sept. 1
Lone Star Cement Corp.—Q.	0.35	Sept. 30
Marquette Cement Mfg. Co.	0.35	Sept. 30
Missouri Portland Cement Co.	0.50	Sept. 30
National Gypsum Co.—Q.	0.35	Sept. 30
Nazareth Cement Co.	0.50	Sept. 15
North American Cement Corp.—A&B com. Q.	0.15	Sept. 15
Northwestern Portland Cement Co.—1st pf.	1.50	Sept. 19
Pacific Coast Aggregates, Inc.—Q.	0.10	Sept. 24
Pacific Coast Aggregates, Inc.—pf.—Q.	1.12½	Oct. 15
Peerless Cement Corp.—sp.	0.12½	Sept. 11
Peerless Cement Corp.	0.25	Sept. 11
Pennsylvania Glass Sand Corp.—Q.	0.30	Oct. 1
Pennsylvania Glass Sand Corp.—5% pf.—Q.	1.25	Oct. 1
Penn-Dixie Cement Corp.	0.50	Sept. 15
Permanente Cement Co.—Q.	0.35	Oct. 31
Riverside Cement Co.—cl. A—Ac.	0.50	Oct. 15
Santa Cruz Portland Cement Co.—Q.	1.00	Sept. 22
Santa Cruz Portland Cement Co.—E.	0.50	Sept. 22
Standard Silica Corp.—Q.	0.12½	Aug. 15
Superior Portland Cement Div.	0.30	Sept. 10
Texas Industries, Inc.—Q.	0.15	Oct. 15
Texas Industries, Inc.—E.	0.05	Oct. 15
United States Gypsum Co.—E.	1.50	Oct. 1
United States Gypsum Co.—Q.	1.00	Oct. 1
United States Gypsum Co.—7% pf.—Q.	1.75	Oct. 1
Warner Co.—Q.	0.40	Oct. 15
Whitehall Cement Mfg. Co.—Q.	1.00	Sept. 30

IDEAL CEMENT CO., Denver, Colo., reports net sales for the first six months of 1953, of \$25,528,833, against the 1952 figure of \$23,231,624. A net profit of \$4,022,188, or \$2.45 per share on 1,636,140 shares, was given for the six month period of 1953, compared to \$3,221,500, or \$1.97 per share on 1,636,140 shares, in 1952.

BLUE DIAMOND CORP., Los Angeles, Calif., gives an account of \$7,362,323 net sales for the six months ended June 30, 1953, compared to \$5,891,403 for the same period of 1952. Net profits for the 1953 period amounted to \$491,472, or \$0.67 per share on 729,313 shares, against \$416,319, or \$0.57 per share on the same number of shares for 1952.

AMERICAN ROCK WOOL CORP., Washash, Ind., reports for the 24 weeks ended July 16, 1953, net sales of \$3,288,188, against \$2,988,797 for the same period of 1952. A net profit of \$91,127, or \$0.30 per share on 300,000

American HAMMERMILLS

OFFER...

"AES Series"
Made in 4 sizes and two types. Capacity to 250 T. P. H.
Front Feed — For minimum of fines.
Center Feed — For maximum of fines. (Illustrated at left)



...A Size for Every Tonnage

"30 Series"
Made in 4 sizes. Capacity up to 100 T.H.H.



...from Roadstone to Agstone

"24 Series"
Made in 4 sizes. Capacity up to 50 T. P. H.



Write for Bulletin—"Better Stone Crushing"

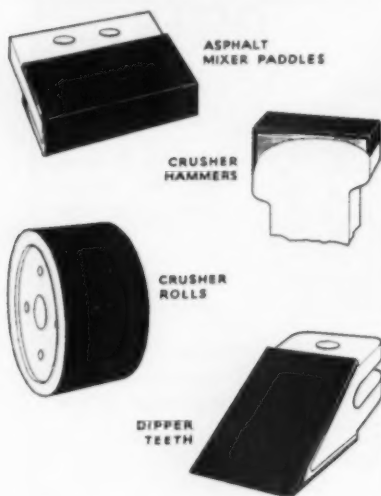
American

PULVERIZE COMPANY
Originators and Manufacturers of Ring Crushers and Pulverizers

1245 Macklind Ave.

St. Louis 10, Mo.

BUILD UP WORN PARTS WITH REXARC S-3; HARD-FACE WITH 55



Build up with Rexarc S-3 and hard-face with "55" is a hard and fast rule with experienced welders who know their "hard rod".

Why this popularity? The superior qualities of "S-3" are well known. Welders acclaim Rexarc 55 for its extreme ease of application in any position, AC or DC. They like the smooth laydown . . . the tough, hard deposit that registers 54-60 Rockwell "C" in one pass!

Yes, where there's extreme impact and severe abrasion, specify Rexarc S-3 and 55 for best results. If you haven't tried this successful combination, call your Distributor, today.



**SIGHT FEED
GENERATOR COMPANY**

64 East Third Street
West Alexandria, Ohio, U.S.A.

shares, was given for the 1953 period, compared to the 1952 figure of \$76,264, or \$0.25 per share on 300,000 shares.

LEHIGH PORTLAND CEMENT CO., Allentown, Penn., has reported a net profit of \$2,491,799, or \$1.31 per share on 1,901,560 shares, for the six months ended June 30, 1953. This compares to the 1952 figure of \$2,479,378, or \$1.30 per share on 1,901,560 shares. Net sales for the first six months of 1953 amounted to \$25,979,962, against \$24,897,321 for the comparative period of 1952.

PENNSYLVANIA GLASS SAND CORP., Lewistown, Penn., lists the following report of income for the six-month periods ended June 30:

	1953	1952
Net before taxes.....	\$1,373,198	\$1,290,252
Inc. taxes.....	382,066	377,807
Net profit.....	991,132	912,445
Earn., pfd. sh.....	\$31.97	\$29.43
Earn., com. sh.....	1.29	1.29
No. of pfd. sh.....	31,000	31,000
No. of com. sh.....	708,092	643,720

LONGHORN PORTLAND CEMENT CO., San Antonio, Texas, submits the following report of earnings for the six months ended June 30:

	1953	1952
Net before taxes.....	\$1,207,423	\$1,281,570
Fed. inc. tax.....	715,371	772,780
Net profit.....	492,052	508,790
Earn. surplus 1-1.....	1,668,712	1,557,822
Com. divs.....	399,328	399,328
Earn. surp., 6-30.....	1,761,435	1,667,284
Earn., com. share.....	\$0.99	\$1.02
No. of com. shares.....	499,160	499,160

TEXAS INDUSTRIES, INC., Dallas, Texas, gives a report of \$5,773,111 net sales for the year ended May 31, 1953, compared to \$3,807,078 for 1952. A net profit of \$329,047, or \$1.14 per common share on 280,454 common shares and \$18.12 per pf. share on 18,155 pf. shares, was reported for 1953. This compares with the 1952 figure of \$169,168, or \$1.32 per common share on 121,052 common shares and \$9.32 per pf. share on 18,155 pf. shares.

CONSOLIDATED CEMENT CORP., Chicago, Ill., lists the following income for the nine-month periods ended September 30:

	1953	1952
Net sales.....	\$4,525,900	\$3,695,400
Cost & exp.....	3,243,100	2,869,800
Deprec. & deplet.....	164,300	181,000
Net earnings.....	1,118,000	644,600
Other inc., net.....	19,800	300
Total income.....	1,137,800	644,900
Fed. inc. tax.....	542,000	349,500
Excess prof. tax.....	29,400
Net profit.....	566,400	295,400
Earn., cl. A share.....	\$5.67	\$2.95
No. of cl. A shs.....	99,916	99,916

GIANT PORTLAND CEMENT CO., Philadelphia, Penn., reports the following list of earnings for the 12-month periods ended September 30:

	1953	1952
Net sales.....	\$9,163,161	\$5,622,114
Net before taxes.....	3,119,182	1,416,687
Inc. taxes.....	1,734,300	669,391
Net income.....	1,384,882	747,296
Earn., com. sh.....	\$1.07	\$0.62
No. of com. sh.....	1,296,809	1,198,808
Dividends stk.....	6%

BASIC REFRACTORIES, INC., Cleveland, Ohio, has reported net sales of \$8,188,914 for the six months ended June 30, 1953, against \$5,638,010 for the same period of 1952. A net profit of \$375,516, or \$0.66 per common

share on 489,475 shares, and \$19.26 per pf. shares on 19,500 pf. shares, was given for the 1953 period, compared to \$153,094, or \$0.26 per common share on the same amount of shares for the like period of 1952, and \$15.31 per pf. share on 10,000 pf. shares.

LONE STAR CEMENT CORP., New York, N.Y., gives the following report of earnings for the six-month periods ended June 30:

	1953	1952
Sales.....	\$37,150,740	\$39,182,999
Mfg., etc., costs.....	20,202,203	22,075,939
Selling, etc., exp.....	2,696,032	2,715,672
Deprec. & deplet.....	2,745,030	2,690,135
Oper. prof.....	11,507,475	11,701,253
Other income.....	268,278	394,806
Total income.....	11,775,753	12,096,059
Pension, etc., exp.....	292,846	171,761
Interest.....	107,145	136,696
Misc. charges.....	439,924	649,293
General taxes.....	1,124,307	1,260,670
Fgn. exch. res.....	175,000	200,000
Fed. inc. tax.....	4,000,000	3,885,000
Excess prof. tax.....	700,000	675,000
Other inc. tax.....	893,205	937,041
Minority int.....	5,214
Net profit.....	4,040,112	4,180,688
Earn. per com. sh.....	\$1.42	\$1.47
No. com. sh.....	2,846,091	2,846,791

NEW ENGLAND LIME CO., Adams, Mass., gives a net sales account of \$965,644 for the six months ended June 30, 1953, compared to the 1952 figure of \$914,757. A net income of \$104,891, or \$1.51 per share on 69,622 shares, was reported for the 1953 six-month period. This compares with \$62,466, or \$0.90 per share on 69,622 shares for the comparative period of 1952.

MARQUETTE CEMENT MANUFACTURING CO., Chicago, Ill., has submitted the following list of earnings for the nine-month periods ended September 30:

	1953	1952
Net sales.....	\$22,384,445	\$21,138,760
Other revenues.....	1,266,151	1,073,681
Total.....	23,650,596	22,212,441
Cost of sales, etc.....	13,506,414	12,998,765
Selling, etc. exp.....	2,187,877	2,067,446
Other exp.....	251,380	75,744
Net earn.....	7,704,925	7,070,486
Interest.....	213,952	224,681
Inc. taxes.....	4,181,757	3,765,479
Net profit.....	3,309,216	3,080,326
Earn., pfd. share.....	\$20.68	\$19.10
Earn., com. shares.....	3.72	3.45
No. of pfd. shares.....	160,000	161,250
No. of com. shares.....	850,000	850,000

UNITED STATES GYPSUM CO., Chicago, Ill., reports the following earnings for the six month periods ended June 30:

	1953	1952
Earned per com. sh.....	\$6.20	\$5.83
Net sales.....	\$94,702,257	\$88,122,333
Net before inc. taxes.....	26,769,065	25,197,175
Federal inc. taxes.....	16,574,000	15,597,000
Net profit.....	10,195,065	9,600,175
No. com. shares.....	1,599,799	1,599,787

PERMANENTE CEMENT CO., Oakland, Calif., gives the following list of earnings for the six months ended July 31:

	1953	1952
Net sales.....	\$17,774,000	\$12,724,000
Net income.....	2,272,157	1,640,899
Earn. per share.....	\$1.62	\$1.17
No. of shares.....	1,400,000	1,400,000

ALPHA PORTLAND CEMENT CO., Easton, Penn., reports net sales of \$25,145,604 for the 12 months ended June 30, 1953, compared to \$24,329,341 for 1952. A net income of \$2,664,473, or \$4.54 per share on 586,956 shares, was reported for 1953, against \$2,200,654, or \$3.75 per share on 586,956 shares for 1952.

NEW! EXCLUSIVE
XDC
COVER

**MAKES
 R/M CONVEYOR BELTS
 LAST MUCH LONGER**



you get More use per dollar at no higher cost

Now, an amazing new conveyor belt cover compound developed by Raybestos-Manhattan provides phenomenal resistance to wear and tear. Most conveyor belt failures start with wear of the cover. "XDC" Cover greatly extends the life of R/M Conveyor Belts by giving protection never before attained against wear, abrasion, cuts and tears which lead to costly internal damage. The new "XDC" Cover greatly increases the benefits of Raybestos-Manhattan's other

outstanding developments in conveyor belt design . . . Constructions like extra flexible RAY-MAN "F," extra-cushioned HOMO-CORD, HOMOFLEX and extra-high tension RAY-MAN. This major advance in rubber engineering puts longer life, "More Use per Dollar" into tough, dependable R/M Conveyor Belts. When you are thinking about conveyor belts, call an R/M representative.



MANHATTAN RUBBER DIVISION — PASSAIC, NEW JERSEY

RAYBESTOS - MANHATTAN, INC.



Flat Belts



V-Belts



Conveyor Belts



Hose



Roll Covering

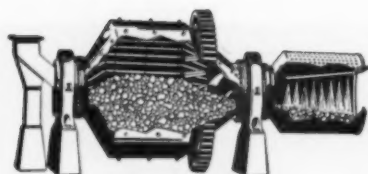


Tank Lining

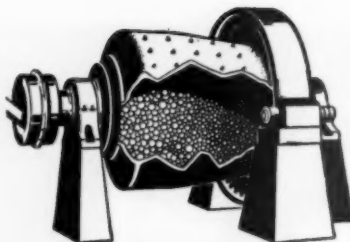


Abrasive Wheels

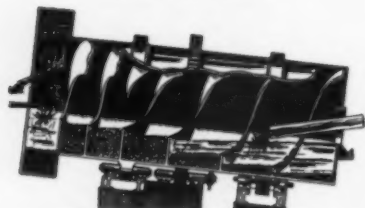
Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings
 Asbestos Textiles • Packings • Engineered Plastic, and Sintered Metal Products • Bowling Balls



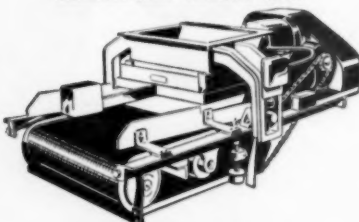
CONICAL SCRUBBERS



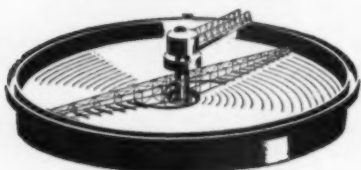
CONICAL AND TRICONE MILLS



COUNTER-CURRENT CLASSIFIERS



CONSTANT-WEIGHT FEEDERS



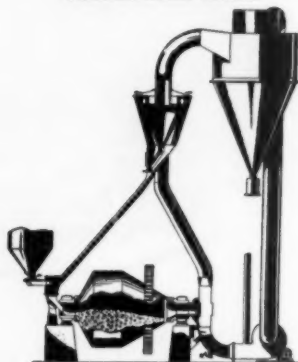
"AUTO-RAISE" THICKENERS



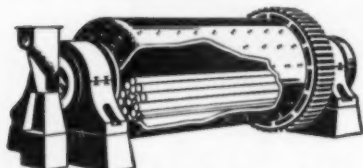
RUGGLES-COLES DRYERS



CONVEX HEAD TUBE MILLS



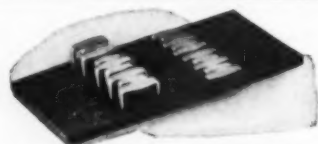
HARDINGE AIR CLASSIFIERS



CONVEX HEAD ROD MILLS

HARDINGE COMPANY, INCORPORATED

YORK, PENNSYLVANIA • 240 Arch St. • Main Office and Works
New York • Toronto • Chicago • Hibbing • Houston • Salt Lake City • San Francisco



READY TO APPLY FINISHED JOINT

The DUAL PURPOSE LACING for
PATCHING and SPLICING

No Special Tools Required:
JUST A HAMMER

Write for Bulletin and Name of Jobber

THREE POINT BELT LACING CO.

PEACE DALE, RHODE ISLAND
Formerly Mfg. by The Bristol Co.

TRADE MARK

Clip-a-Rip

BELT LACING

FOR: ALL CONVEYOR BELTING

1/4" TO 3/8" THICK

MANUFACTURERS NEWS

The Euclid Road Machinery Co., Cleveland, Ohio, announces the appointment of V. L. Snow as director of sales. He succeeds E. F. Armington who has resigned after 22 years of service but will continue to serve as sales consultant. Mr. Snow, who has been a member of Euclid since 1935, was formerly manager of domestic sales



V. L. Snow

and will be succeeded by J. E. Ehlert, who has been assistant sales manager. P. H. Malenchini, manager of export sales, and R. W. Phillips, manager of defense requirements, will continue to direct activities of their respective departments. Robert J. Lenz has been appointed manager of the customer service department, replacing George M. Perry who has been named director and works manager of Euclid Great Britain, Ltd.

Vulcan Iron Works, Wilkes-Barre, Penn., has announced the appointment of W. S. Dickie, who has been with the company since 1917, as director of the process equipment division. B.



W. S. Dickie



B. Franklin Witmer

Franklin Witmer has been named manager of cement equipment sales. He was formerly chief engineer of the Valley Forge Cement Co. and the Allentown Cement Co.

United States Rubber Co., New York, N.Y., has announced the appointment of Ben F. McCormack as eastern regional manager, with headquarters in New York. Henry Hitchins has been made sales engineer for construction tire sales in the east. C. N. Clabough has been appointed central regional manager and will make his headquarters in Chicago, and Dugald McKinnon has been named western regional manager with offices in Denver, Colo. Joseph Bernat has been named sales engineer in the western region.

The Dorr Co., Stamford, Conn., has promoted the following department managers to vice-presidents: Frank H. Conover, procurement and production department, Stamford, Conn.; Harold B. Coulter, mechanical engineering department, Larchmont, N.Y.; John D. Grothe, consulting engineering department, Weston, Conn.,

also elected a director; Douglas C. Reybold, in addition to his duties as controller and director; and Dr. Elliott J. Roberts, technical director in charge of research, development and the Westport mill.

St. Regis Paper Co., New York, N.Y., announces that Charles A. Woodcock, vice-president of St. Regis



Charles A. Woodcock

Sales Corp., a subsidiary, has been appointed general sales manager for multiwall bags in the United States. He will make his headquarters in New York City. Mr. Woodcock will be succeeded as district manager of the Midwestern sales district of the multiwall packaging division by Frank W. Myers, Jr., also a vice-president of St. Regis Sales Corp. Mr. Myers was formerly assistant manager of the district.

Kensington Steel Co., Chicago, Ill., announces that Eugene C. Bauer, Jr., has been elected president to succeed Kenneth Jensen, who has retired but will continue with the company as a



Eugene C. Bauer, Jr.



H. Monteith Albers

consultant. Mr. Bauer is also a director of the company and of Pioneer Engineering Works, Inc., both subsidiaries of Poor & Co., Chicago, and is assistant to the president of Poor & Co. He will be succeeded as vice-president by H. Monteith Albers, formerly sales manager.

Chase Bag Co., Chicago, Ill., announces the promotion of J. B. Trigg to sales manager of the Buffalo, N.Y., branch. He has been a sales representative in Dallas, Texas, since 1947.

H. K. Porter Co., Inc., Pittsburgh, Penn., announces that the Quaker Rubber Corp. has opened a warehouse and sales office in Los Angeles, Calif., under the supervision of James Joyner.

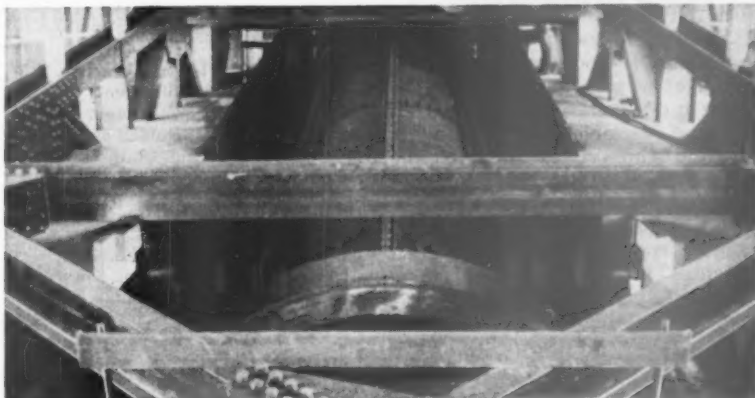
Pettibone Mulliken Corp., Chicago, Ill., announces the election of L. E. Denman as assistant treasurer.

Westinghouse Electric Co., Pittsburgh, Penn., announces the election of William A. Patterson to the board of directors. Mr. Patterson is president of United Air Lines. M. H. Hobbs has been appointed manager of the switchgear division to succeed J. B.

Need Screens or Conveyors

FOR DREDGE
MINE OR PLANT?

CONSULT
YUBA



ABOVE

YUBA-built revolving screen, 50' long, 9' diameter, weight about 65 tons.



AT LEFT

YUBA-built conveyor stacker for conveying rock tailings from revolving screen on YUBA placer dredge to rock piles astern. 44" belt, 225' long.

You get long wear, reduce shutdowns for replacement when separating, scrubbing or sizing with YUBA Screens. They're made from Abrasion Resisting Steel* plate, a high carbon, high manganese alloy steel with Brinnell hardness of 200 to 250. Taper drilled holes prevent clogging, can be small and closely spaced for screening monazite sands and other rare earths. Flat or revolving. All thicknesses from 1/4" up; other dimensions as needed. Screens with cast manganese steel plates also can be furnished on request.

* United States Steel product

Conveying rock, sand and gravel has been part of YUBA's business ever since 1909. We've built hundreds of heavy-duty conveyors for use on dredges, in pits and at plants. Bring your conveyor problems to us for recommendations and estimates. No obligation. Wire, write or call TODAY.



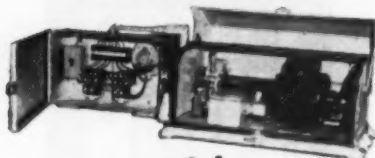
YUBA MANUFACTURING CO.

Room 717, 351 California St., San Francisco 4, California, U. S. A.

AGENTS (SIME, DARBY & CO., LTD., SINGAPORE, KUALA LUMPUR, PENANG, SHAW DARBY & CO., LTD., 14 & 19 LEADENHALL ST., LONDON, E. C. 3.)

CABLES: YUBAMAN, SAN FRANCISCO - SHAWDARSCO, LONDON

CONTROLLED SAMPLING



with GEARY-JENNINGS

Geary-Jennings Sampler is as dependable in operation as it is right in principle. Handles wet or dry materials with controlled variable speeds and length of intervals. Its shielded mechanism is electrically operated. The Geary-Jennings is widely used by both producers and consumers of Rock Products. They count on this rugged machine for true samples, provided at low cost.

Write today for the details.

Leaders in Experience & Service

THE GALIGHER CO.
HOME OFFICE: 545 West 8th St., P.O. Box 209
Salt Lake City, Utah
EASTERN OFFICE: 921 Bergen Ave., Jersey City, N.J.

MacNeill who has joined the staff of John K. Hodnette, vice-president in charge of industrial products. C. M. Laffoon has been named assistant manager of the transportation and generator division.

Atlas Powder Co., Wilmington, Del., announces the appointment of George W. Thompson as assistant to W. E. Collins, director of explosive sales. Mr. Thompson was formerly manager of the explosives sales district in Seattle, Wash., and will be succeeded in this position by Emmett G. Easterly. James M. Ellis, Portland, Ore., salesman, succeeds Mr. Easterly as special representative in Seattle.

General Electric Co., Syracuse, N.Y., announces the appointment of Lacy W. Goostree, Jr., as manager of marketing; Charles M. Heiden as manager of engineering; and Clair C. Lasher as manager of manufacturing.

Caterpillar Tractor Co., Peoria, Ill., has announced construction of a new parts depot in Denver, Colo., to serve Colorado, New Mexico, Wyoming, Utah, Texas and Montana. It is expected to be in operation about February, 1954.

Thew Shovel Co., Lorain, Ohio, announces the appointment of R. G. Thibaut as service manager and C. W. Raby as assistant service manager. Mr. Thibaut succeeds R. P. Kelly who passed away recently.

The Babcock & Wilcox Co., Beaver Falls, Penn., has announced the appointment of James S. Anderson as general sales manager of the tubular products division. He has been assistant general sales manager since 1948. Robert E. Halloran, formerly a New York district salesman of the division, has been named manager of mechanical sales.

Le Roi Co., Cleveland, Ohio, announces that Spencer Bowman has been placed in charge of mining research development of the Cleveland rock drill division. He was formerly assistant to the director of mining development of Bituminous Coal Research, Inc.

Westinghouse Air Brake Co., Pittsburgh, Penn., announces the appointment of Earl D. Hilburn as vice-president of government contract service. For the last five years, Mr. Hilburn has been director of engineering services for Melpar, Inc., Alexandria, Va., research subsidiary of the company.

LeTourneau-Westinghouse Co., Peoria, Ill., announces that E. W. Spannhake has been named director of engineering and research. He was formerly technical director of research and development activities for Barnes & Reinecke, Inc., Chicago engineering firm.

Worthington Corp., Harrison, N.J., announces that Kenneth W. Horsman has been appointed general manager of the Plainfield, N.J., works. Paul J. Foley has been named general sales manager, and John F. Weissert has been appointed general superintendent. W. J. Fleming has been transferred to the Holyoke, Mass., works.

Chain Belt Co., Milwaukee, Wis., has announced the appointment of Richard Leek as manager of the Mid-Atlantic district of the construction machinery division, with headquarters at Philadelphia, Penn. He was formerly Mid-Atlantic district representative.

Clark Equipment Co., Buchanan, Mich., has arranged for the following eastern dealers to handle the newly-acquired Ross line of straddle carriers and fork trucks: Fallway Spring & Equipment Co., Baltimore, Md.; C. E. Reutter Corp., New Haven, Conn.; Rushmore, Weber & Case, Inc., Latham, N.Y.; and Brodie Industrial Trucks, Inc., Malden, Mass., and Buffalo, N.Y.

Ellwell-Parker Electric Co., Cleveland, Ohio, has appointed William H. Campbell as treasurer and assistant secretary.

Trailmobile, Inc., Cincinnati, Ohio, has opened a factory branch in Springfield, Mo., with Frank Wood as manager.

The Foxboro Co., Foxboro, Mass., has opened a branch office in Amarillo, Texas, with D. T. McElligott as

(Continued on page 199)

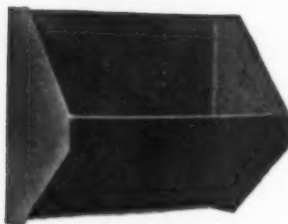


... KNOCK-OUT!

High Material Handling Costs

Specify Super-Service

STANDARD STEEL ELEVATOR BUCKETS



Continuous Type
(Style No. 2 shown)



Salem Type

Write Today. You will approve our
Prices and our Service

STANDARD Steel Buckets "stand up like champions" in resisting abrasion and corrosion.

Rigidly built of top-grade steel. Reinforcing strip may be welded to bucket lip, and hard surface rod added, to insure extra service life.

High-economy STANDARD Buckets are available in all styles, types, sizes and gauges.

We are equipped to furnish new units or recondition present equipment at minimum cost.



STANDARD METAL MFG. CO.

110 CENTER ST., MALINTA, OHIO

You can't compete if your equipment is obsolete!

With construction activity becoming more competitive, even in the face of high labor costs, it is more important than ever before to take a closer look at your operating costs . . . your dirt moving methods . . . your tools and equipment.



many material producers and contractors, both large and small.

If you are already "PAYLOADER"-equipped, you'll be pleasantly surprised at the superior performance of the late model "PAYLOADERS". Although

Obsolete methods and equipment take a heavy toll by slowing down output, increasing manhours and increasing repairs and maintenance. Efficient material handling equipment can make the difference between profit and loss on most any job . . . help insure that time and production schedules are met without resorting to expensive overtime and wasteful emergency practices.

If you are not using "PAYLOADER" Tractor-Shovels at present, it will pay you to investigate these fast, flexible, rubber-tired loaders that have proven so profitable for so

"PAYLOADERS" are built to give thousands of hours of dependable service, constant research and engineering improvements keep them out in front in design, construction and performance.

Now is the time to trade in obsolete equipment — to modernize your methods to meet present day conditions — to assure profitable operation in spite of closer competition. Your nearby "PAYLOADER" Distributor will gladly demonstrate any of the new models. The Frank G. Hough Co., 705 Sunnyside Ave., Libertyville, Ill.



Always insist on genuine
BLAW-KNOX REPAIR PARTS



- cut clamshell maintenance costs
- reduce costly downtime
- prolong bucket life

BLAW-KNOX repair parts are especially designed to fit your Blaw-Knox Clamshell. They contain *all* the carefully engineered features of the original parts to assure the efficient operation, low maintenance and long life you expect from Blaw-Knox products.

There's no need to use a costly "mongrel" bucket...

always insist on genuine, factory-built repair parts.

Write for a parts book today, if you don't have one, giving the serial number of your bucket.

BLAW-KNOX COMPANY
 BLAW-KNOX EQUIPMENT DIVISION
 2035 FARMERS BANK BLDG.
 PITTSBURGH 22, PA.
 Offices in Principal Cities

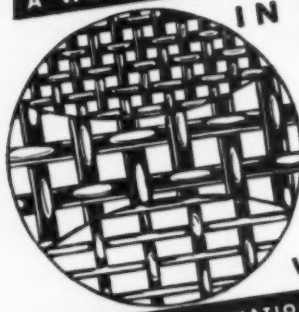
Get this "Bucket Saver" booklet

It's the only booklet available with a bucket-saver list of "do's" and don'ts on clamshell use and abuse. It illustrates reaving methods that improve bucket performance. It gives complete details on bucket repair. It contains 40 pages of usable information. Write for Bulletin 1373 today!



PHONE... WIRE... WRITE... YOUR BLAW-KNOX DISTRIBUTOR

Industry has
 A WORLD OF CONFIDENCE
**IN NAT-ALOY
 WIRE CLOTH**



COVERS EVERY REQUIREMENT

... for a dependable, long-wearing, non-crystallizing Screen Cloth. Has "Nat-Alloy" Lock Crimp Meshes. Preferred for screening accuracy, economy and serviceability. All Sizes — All Meshes — All Gauges.

Write for Catalog No. 55

NATIONAL WIRE CLOTH CO., INC.
 St. Paul, Minn.

PLATEGRIP
 PLATE FASTENERS FOR CONVEYOR BELTS



Make strong dust-tight, water-tight joints in belts of any width. Special design spreads tension uniformly across belt, allow natural troughing of belt and assures smooth operation over flat, crowned or take-up pulleys. Sizes for belts of from 1/4" to 1 1/2" thickness. Write for Catalog Sheet.

ARMSTRONG BRAY & CO.
 5386 Northwest Highway, CHICAGO 30, U. S. A.

**CONCRETE BURIAL
 VAULTS**

AMERICA'S FINEST MOLDS AND LOWERING DEVICES



TERRITORY FRANCHISES
BERG VAULT CO.
 EQUIPMENT DIVISION
 1620 LUCAS HUNT RD. ST. LOUIS 20, MO.

NOTIFY US OF CHANGE
 OF ADDRESS TO
 ASSURE PROMPT
 DELIVERY OF EACH
 ISSUE OF

ROCK PRODUCTS

(Continued from page 196)

industrial engineer. Formerly with the Dallas office. Mr. McElligott will serve Oklahoma and New Mexico in addition to the Amarillo area.

Clark Equipment Co., Buchanan, Mich., has established a low-cost equipment leasing program whereby equipment is leased to a customer for a 3- or 5-year period, with each annual rental payable in monthly installments. At the end of the periods the lessee has an option of extending the lease on a year-to-year basis. The program operates through the dealers.

Link-Belt Co., Chicago, Ill., has announced the appointment of Harvey V. Eastling as general manager of the Pacific division, with headquarters in San Francisco. He succeeds Ralph M. Hoffman, who has retired after 40 years of service.

Nopco Chemical Co., Harrison, N. J., announces the appointment of Robert F. McClellan as vice-president and general manager of Yocum Faust Ltd., London, Ont., Canada, a subsidiary recently acquired by Nopco.

Baldwin-Lima-Hamilton Corp., Construction Equipment Div., Lima, Ohio, has announced availability of a 16 mm. color-sound film entitled "The Loggers' Giant." The movie is a narrative-type travelogue showing Lima machines in action.

Charles E. Wood Co., Milwaukee, Wis., has announced the appointment of Robert E. Olsen as chief engineer. He was formerly with the U.S. Corps of Engineers as material engineer on Garrison Dam.

Sika Chemical Corp., Passaic, N. J., manufacturers of Plastiment concrete densifier, has opened a branch sales office in Salt Lake City, Utah, with H. C. Jensen as manager.

Columbia Machine Works, Vancouver, Wash., announces availability of the company's line of concrete block machines on a lease-purchase or outright sale basis.

The Dayton Rubber Co., Dayton, Ohio, announces the appointment of John J. Walsh as advertising manager, and Robert T. Hollister as manager of public relations.

Linatex Corp. of America, Rockville, Conn., has appointed the Toneray Equipment Co., Denver, Colo., as sales representative.

The Euclid Road Machinery Co., Cleveland, Ohio, has appointed the Western Tractor & Equipment Co., Seattle, Wash., as distributor in western Washington and Alaska.

Dewey & Almy Chemical Co., Cambridge, Mass., has announced the election of Arthur D. Angell as vice-president of the western division.

Schonrock Equipment Mfg. Co., San Angelo, Texas, has announced the appointment of Tom J. Hawthorne as sales representative. He was formerly with the Mack Truck Co.

MODERNIZE YOUR PLANT with Cedarapids-Schrock **MOTORIZED HEAD PULLEYS**



Here's a plant modernized with Motorized Head Pulleys that cut conveyor downtime up to 90% because all moving parts are inside the pulley shell! You save labor, too. On the installation shown at the left, the control switch enables the truck driver to pull up and load his own truck simply by pressing the button.

HUNDREDS OF INDUSTRIES ARE REDUCING CONVEYOR DOWNTIME 70% to 90%

● NOW you can eliminate maintenance headaches on your belt or belt-bucket conveyor installations. With Cedarapids-Schrock Motorized Head Pulleys there are no chains, sprockets, sheaves out in the weather and dirt, no chain idlers to keep adjusted and oiled, no V-belts to adjust or replace, no shafts and drives to service or

lubricate. *There is no other pulley like it!*

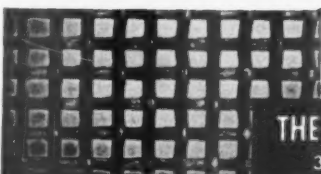
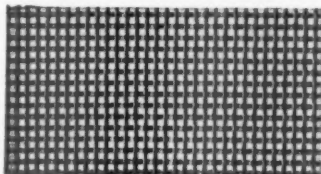
The next time you're down for weather, between jobs, or shut down for any reason, provide for future cuts in maintenance costs by modernizing your plant with Motorized Head Pulleys. Your Cedarapids distributor can give you the money-saving details.

Built for sale in Arizona, California, Nevada, New Mexico, Southern Oregon, Southwestern Utah and Texas by

YUBA MANUFACTURING CO. (Pulley and Sprocket Dept.) Benicia, California

IOWA MANUFACTURING COMPANY, Cedar Rapids, Iowa, U.S.A.

AROUND THE CLOCK EVERYDAY—WITHOUT SHUTDOWNS CLEVELAND WIRE SCREENS



Everyday—around the clock... less down time... increased tonnage... greater production can be yours when you install longer life "Cleveland" Wire Screens. Tough—yet ductile, produced by craftsmen, "Cleveland" wire screen sections maintain rigid accuracy of openings, have fewer wire breaks, prove greater resistance to abrasion, corrosion and fatigue. Mail us your requirements—our specialists will make recommendations at once.

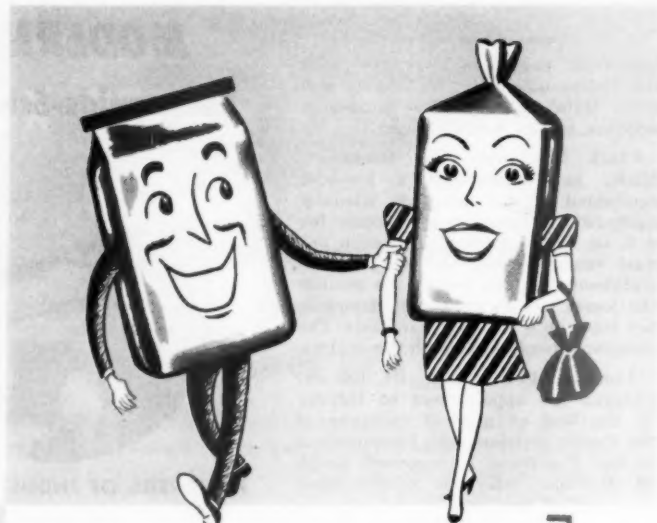
Write for Bulletin No. 5 and 6.

THE CLEVELAND WIRE CLOTH & MFG. CO.

3574 E. 79 STREET · CLEVELAND 5, OHIO

Attractive....

Brilliant multi-color printing of your brands on Hammond Multi-Walls... combined with the uniform high quality of papers and materials used in their production, provide you with shipping containers second to none. Manufactured to exacting standards every step of the way, Hammond Multi-Walls are attractive and strong for safe, economical delivery of your products. Consult your Hammond man today.



HAMMOND BAG & PAPER COMPANY

General Offices: Wellsburg, W. Va.

Plants in Wellsburg, W. Va., Pine Bluff, Ark. and Charlotte, N. C.

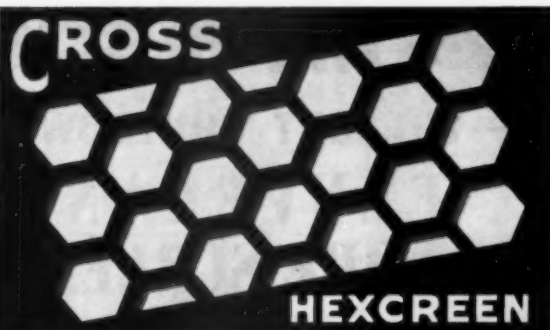
Representatives in the following cities:

CHICAGO, ILL. • BLUEFIELD, VA. • KANSAS CITY, MO.
MINNEAPOLIS, MINN. • LIGONIER, PA. • WASHINGTON, D. C. • NEW YORK, N. Y. • ST. LOUIS, MO.
AKRON, OHIO • DALLAS, TEX. • BIRMINGHAM, ALA.
CHARLOTTE, N. C.



Hammond Multi-Walls

For Multi-Wall bags, "make it a habit to depend on Hammond."



... a honey of a Screen

COMBINES the UNIFORMITY of ROUND OPENINGS with GREATER CAPACITY than Square Openings

"CROSS" Perforated Steel Plates and Sections for VIBRATING-SHAKING-REVOLVING Screens

Look for this Stamp on all "Cross" Products



the sign of PLUS QUALITY for PLUS PERFORMANCE

Services of CROSS Field Engineer and Technical Data on Request

CROSS ENGINEERING COMPANY

Manufacturers • Carbondale, Pennsylvania • Telephone: 300

"CROSS" SERVICE AGENCIES in Principal Cities

New York, N.Y.—101 Park Ave.—Murray Hill 5-0253

You Can Control **DUST** with **AQUADYNE** Multiphase **Wet Water**



Low installation cost and operation at less than 1/2 cent per ton of stone.

If you are interested in effective and inexpensive dust abatement, write for free booklet "Wet Water in Mines and Stone Plants".

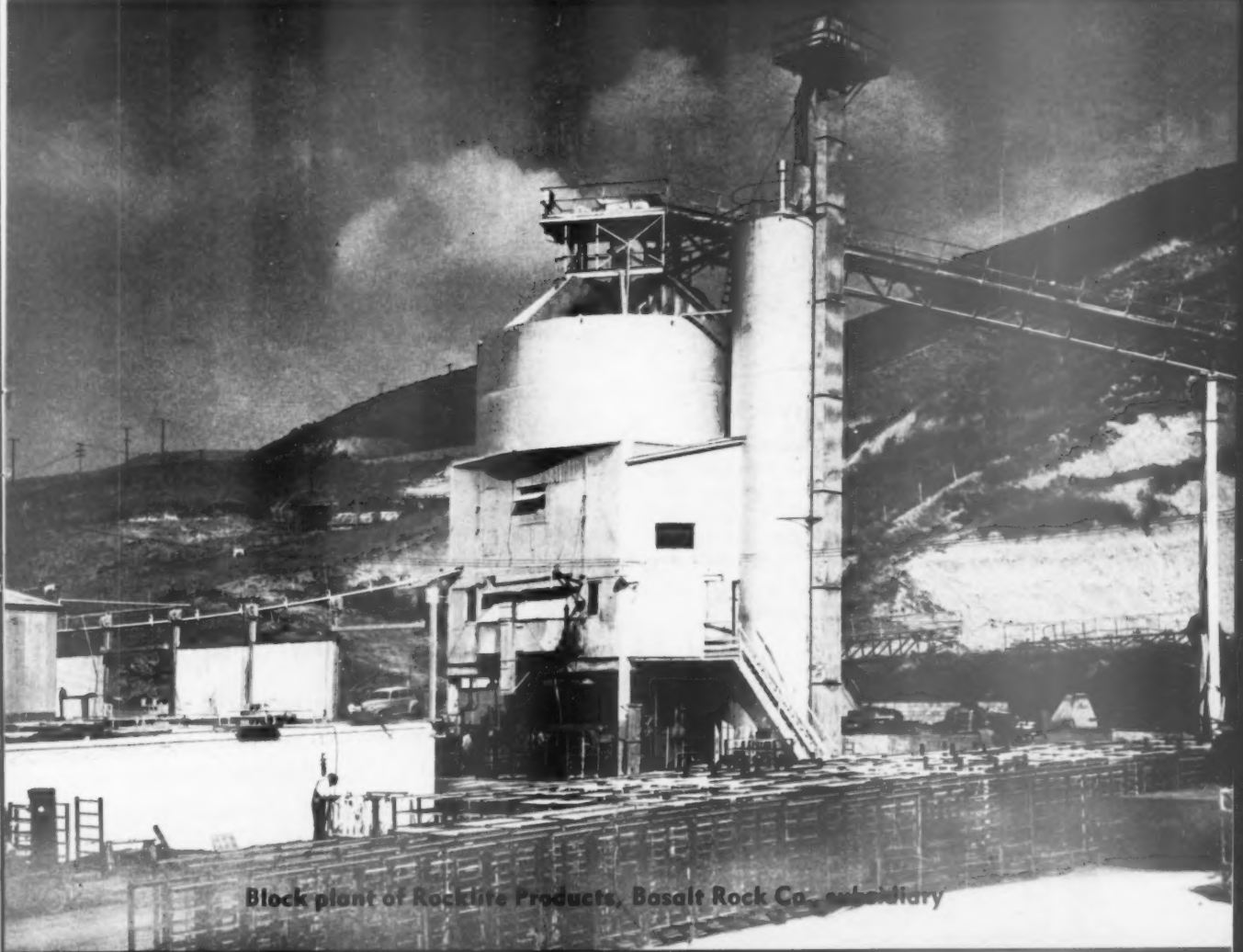
AQUADYNE
CORPORATION

441 LEXINGTON AVENUE
NEW YORK 17, N. Y.
TEL.: VANDERBILT 6-2750

CONCRETE PRODUCTS

A SECTION OF ROCK PRODUCTS

CONCRETE UNITS · READY-MIXED CONCRETE



Block plant of Rocklife Products, Basalt Rock Co., subsidiary

Silo stave manufacturers find that: Duraplastic* helps keep profits up and costs down



"Thrifty" says:

Don't let excessive production costs cut into your profits. Users of Atlas Duraplastic Cement report less breakage in handling green machine-made products and a reduction in the number of culls and throwbacks. You see, it really pays to specify Duraplastic.

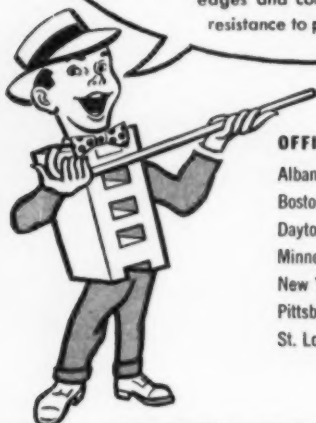
PRODUCTION POINTER—

You'll discover that Duraplastic Cement makes a more cohesive, rubbery mix that holds together better . . . feeds easily through machines. Duraplastic is preferred not only for manufacturing silo staves, but also for pipe, brick, block, drain tile and other concrete products.



"Nifty" says:

Good appearance counts, too, because Duraplastic-made products can help you harvest a bumper crop of satisfied customers. The face texture is richer, especially when harsh aggregates are used. And plants find that Duraplastic gives clean, true edges and corners . . . increased resistance to passage of water.



OFFICES:

Albany, Birmingham,
Boston, Chicago,
Dayton, Kansas City,
Minneapolis,
New York, Philadelphia,
Pittsburgh,
St. Louis, Waco.

YET DURAPLASTIC COSTS NO MORE

It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

ATLAS®

DURAPLASTIC

AIR-ENTRAINING PORTLAND CEMENT

Makes Superior Concrete Products at No Extra Cost



CP D-188

UNITED STATES STEEL HOUR—Televised alternate weeks—See your newspaper for time and station.

INDUSTRY NEWS

Concrete Pipe Plant

UTAH CONCRETE PIPE CO. has started operation of its new "spinning" plant at Salt Lake City, Utah. The plant uses the Cen-Vi-Ro process in which the concrete is spun by centrifugal force against the inside of a single form. The pipe are produced in 10-ft. lengths, in 18- to 48-in. diameters. The pipe are belled and attached to each other in laying by use of a rubber gasket.

Utah Concrete Pipe Co. has a contract with Salt Lake City for producing 18,000 ft. of pipe for the city's new water line down City Creek Canyon. The company also operates a pipe plant at Ogden, Utah.

Cover Picture

IN THIS ISSUE of ROCK PRODUCTS is contained the complete story about Basalt Rock Co. operations. The concrete products operations are so integrated with the crushed stone, and sand and gravel activities that their description appears with the main article in the fore part of the magazine. The illustration on the *Concrete Products*' cover shows the block plant of Rocklite Products, a Basalt Rock Co., subsidiary.

Ready-Mix Plant

M. E. RINKER, president, Rinker, Inc., West Palm Beach, Fla., has announced plans to build a ready-mixed concrete plant at Stuart, Fla. Facilities, in addition to the batching plant, will include bulk-cement bins, a mechanical unloading three-compartment aggregate bin, and a railroad siding to accommodate 11 cars. A 55-ft. boom will be erected to unload the aggregate from the railroad cars. Plant capacity will be about 100 cu. yd. of concrete per hr.

P. C. Smith of West Palm Beach will be general manager of the Stuart

plant, which will be the fifth in the Rinker chain of plants outside of West Palm Beach, the others being in Vero Beach, Lake Worth and two at Fort Pierce. Each is a separate corporation. The Stuart plant will be organized as the Rinker Stuart Corp.

Block Plant Sold

PURCHASE of the Lakeside Concrete Products Co. plant by Graystone Concrete Products Co. of Seattle, Wash., was recently announced by Frederic M. Kettenring, Graystone president, and Orville E. Gibson, president of Lakeside Gravel Co. Hugh Watt, who has been associated with Graystone's operations in Seattle and Shelton, Wash., will be plant manager. William Price will continue as operating superintendent. Mr. Gibson stated that transfer of the concrete products plant will enable the Lakeside Gravel Co. to concentrate on its ready-mixed concrete business and increased production of raw materials.

More About Silos

THE DODSON MANUFACTURING Co. manufactures concrete stave silos for industrial concerns, as well as for the farm market. Silos for the storage of grain, sand, bulk cement, lightweight aggregates and other types of bulky materials, are built at the company's Wichita, Kan., plant. This department is headed by Charles Cooley. Among rather recent installations are silos for the concrete products plant of The Carter-Waters Corp. at Kansas City, Mo., and for the corporation's Haydite manufacturing plant at Haydite, Mo. Eight 20- x 65-ft. silos were constructed for the Buildex, Inc. lightweight aggregate plant at Ottawa, Kan.

This information supplements the article on The Dodson Manufacturing Co. which appeared in the November issue of ROCK PRODUCTS, page 137.



Shown above are six truck mixers, just after unloading in Tokyo, Japan. The mixers, manufactured in St. Louis, Mo., by Concrete Transport Co., were purchased by Hitachi Concrete Co., which will mount them on Japanese diesel trucks

FLORA CONCRETE PRODUCTS Co., Flora, Ind., formerly owned by Fred Frye, has been sold to Claude Siegel, Indianapolis, Ind. The corporate name of the firm has been changed to Flora Concrete Tile Co. Concrete tile for farm and highway drainage are produced. George Baum has been named plant manager and Mr. Siegel will handle sales.

STANDARD PRE-STRESSED CONCRETE CORP. has established a plant at Baltimore, Md., for the production of prestressed concrete structural slabs and beams, the first such plant to be established in that area. Officers of the company are S. Paturzo, president; Albert Bromley and Joel Rosenblatt, vice-presidents; and Henry J. Knott, secretary-treasurer.

VERBECK BROTHERS, Tonasket, Wash., producer of sand, gravel and ready-mixed concrete, has purchased the plant and equipment of Fowler Construction Co., Oroville, Wash., which also operated a sand, gravel and ready-mixed concrete plant. Verbeck Brothers will operate both the Oroville and Tonasket plants.

LEWISTON PRE-MIX CONCRETE Co., Lewiston, Idaho, has applied to the Idaho State Land Board for a sand and gravel lease on a portion of the Snake River sand bar, extending from 14th Ave. to South Way. Owner of the company is Stanley Lafrenz.

CHATHAM SAND AND MINE CORP., Savannah, Ga., has been incorporated by Winifred Stanley, Gaynell Tanner and Joseph B. Cramer. Beginning capital was listed at \$200, with an authorization granted for the right to increase this capital to \$50,000.

READY MIXED CONCRETE, INC., Mansfield, Ohio, has added two new 6-cu. yd. transit-mixer trucks to its plant fleet. The company now operates a fleet of 10 transit-mixer trucks. Herb Rusk is president of the company.

DOMINE BUILDERS SUPPLY CORP., Rochester, N.Y., was recently purchased by Harvey H. Black and John F. Foster. Harvey H. Black is president of the corporation and John F. Foster is vice-president.

ATLAS READY-MIX Co., Bismarck, N.D., has started operation of its new ready-mixed concrete plant which will serve the Bismarck and Mandan, N.D., areas. Offices will be maintained at both cities.

CHEHALIS READY-MIX CONCRETE Co. recently added a 500-bbl. bulk-cement silo to its ready-mixed concrete operation at Chehalis, Wash.

A READY-MIXED CONCRETE PLANT has been established at Harper, Kan., by Lester and Dewey Hostetler.

THE KENT CONCRETE PRODUCTS Co., Kent, Wash., was recently purchased by John Hilliker and Lawrence Sedler.

Another Leader [★] IN THE PRODUCTS INDUSTRY PREFERS BESSER VIBRAPACS!



Ernest Kilgore, Mgr., Pinellas Concrete Products, St. Petersburg, Florida.

★ This is the 103rd of a series of ads featuring leaders in the Concrete Products Industry who are stepping up block production with Besser Vibrapac machines.

One Vibrapac Produces 3,000,000 Block Annually in this Progressive Florida Products Plant



Office Building of Pinellas Concrete Products, St. Petersburg, Florida — a good example of concrete masonry construction.

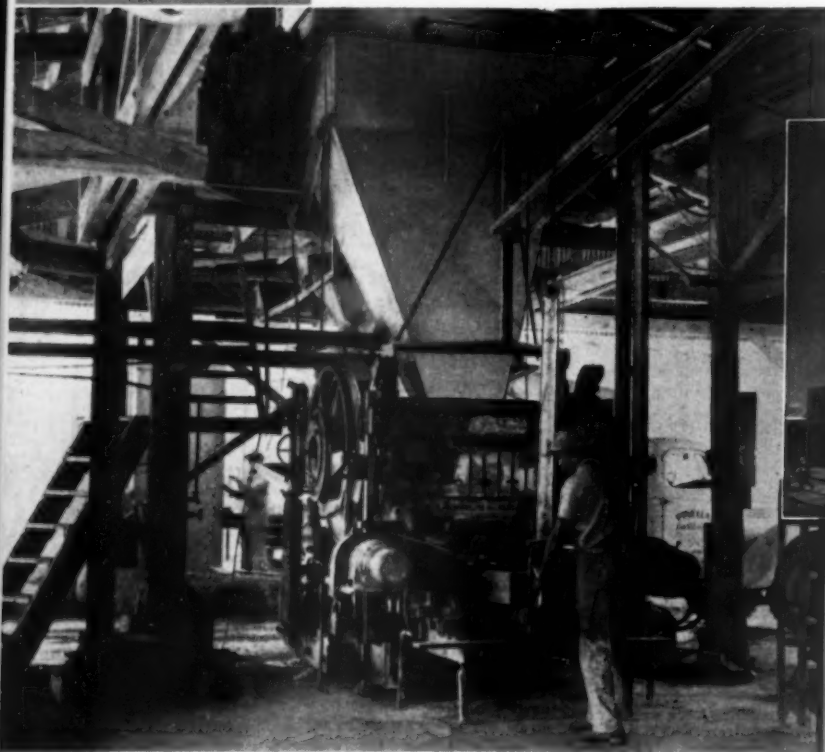
Pinellas Concrete Products, St. Petersburg, Florida, is a typical Vibrapac plant operating on a 24-hour a day schedule of uninterrupted block production. The company installed an Automatic Vibrapac block machine in January, 1946. With this one machine, as many as 3,000,000 high-quality 8" units, or equivalent, are produced annually.

This high rate of block production is maintained day-in and day-out, with no downtime, because Besser equipment is built to withstand long hours of continuous operation. Mr. Ernest Kilgore, Manager of the Pinellas plant, is well pleased with the performance of his Automatic Vibrapac.

Ask Besser today how you can step up block production in *your* products plant.

BESSER MANUFACTURING CO.

Complete Equipment for Concrete Products Plants
ALPENA, MICHIGAN, U. S. A.



A 7530-1PBC



Webb's City — the World's most unusual drug store with annual sales of \$22,000,000. Pinellas has furnished 100,000 Vibrapac 8" units for Webb's City buildings.

Besser Vibrapac in Pinellas plant. Fully automatic. No manual lifting. Off-bearer merely guides the power hoist. Lightweight units are made from a good quality pumice which is shipped by steamer across the Atlantic Ocean from Greece.

BESSER

BATCH MIXERS

SKIP LOADERS

BLOCK & BRICK CUBERS

SUPER VIBRAPAC

SINTERING PLANTS

ACROW CENTERS

ROOF TILE MACHINE

18 large producers in one state alone use



This demand is based upon profit-making experience!

In Florida, a state noted for volume production of ready-mixed concrete, 18 of the largest producers use Hi-Lo stationary drum truck mixers. They've found that Hi-Lo produces more profit than many other makes, yet sells for several hundred dollars less! You get it for less because Hi-Lo is sold direct to you.

The customary percentage usually given to distributors stays in your pocket in the form of savings. This rugged, dependable mixer is constructed to operate for years with only routine maintenance. Your customers will like Hi-Lo's exclusive feature: Visible Mixing Action.

You can see the mix, make sure it's exactly right every time. Try Hi-Lo. It will take only a few trips to see why it's won such acceptance—in Florida and throughout the world!

These features make the difference!

POWER TAKE-OFF DRIVE—save money on cost of separate engine, gas, maintenance.

REPLACEABLE LINERS, of abrasive-resistant steel. You never have to replace the drum!

FULL 180° RADIUS DEEP-CUT SWING CHUTE, for fast discharge.

SLIDING GATE for accurate control. No seal to replace!

NON-LEAKING, SELF-TIGHTENING PACKING GLANDS, last for years.

DEMAND THE BADGE OF DEPENDABILITY



MAIL TODAY . . . for complete prices, terms, descriptive literature!

CONCRETE TRANSPORT MIXER CO.

4987 FYLER AVE., St. Louis 9, Mo. Flanders 7800

CONCRETE TRANSPORT MIXER COMPANY, St. Louis 9, Mo.
Please rush full information, prices and terms on the following:

- ☐ Hi-Lo Stationary Drum Truck Mixers ☐ Batching Equipment
☐ New Rocket Revolving Drum Truck Mixer ☐ Water Meters
☐ Material Handling Equipment

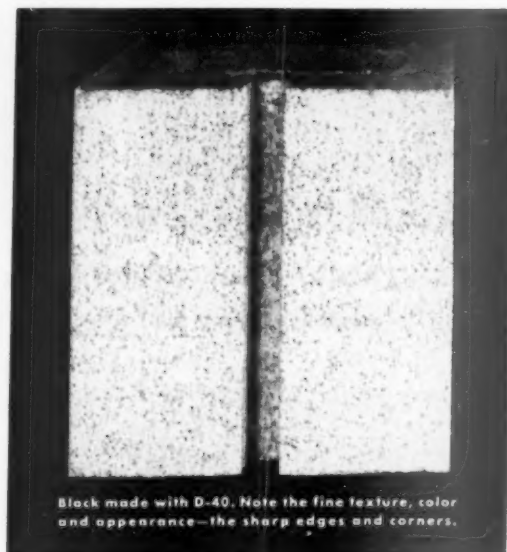
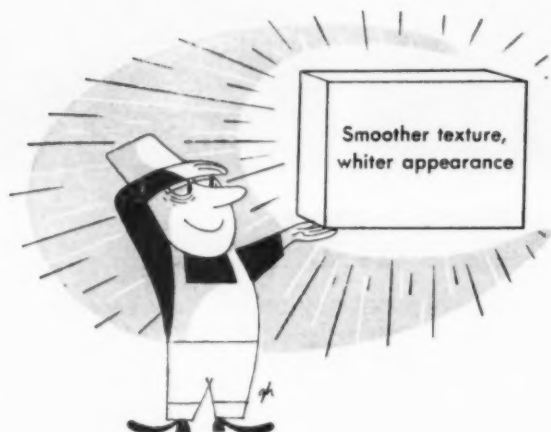
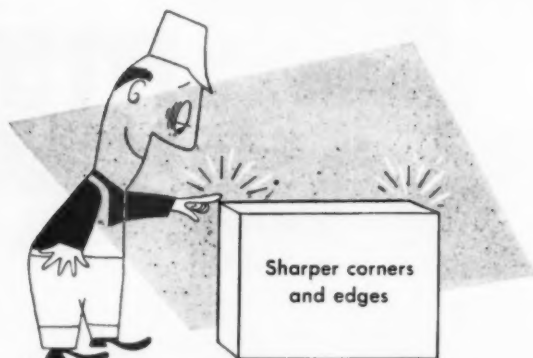
Name _____

Firm _____

Address _____

City _____ State _____

STRONGER concrete blocks



with low-cost D-40

Ask us about the outstanding results concrete block manufacturers are getting by adding one to two ounces of dry, granular D-40 per bag of cement at the mixer. D-40 not only will help you make a greatly superior product but at the same time will reduce your operating costs.

D-40 is a ready-to-use additive supplied in economical 85# bags—available at conveniently located supply points throughout the United States.



Ready-mixed concrete producers have also found D-40 improves their product



For complete information, samples and technical help, write or call the Oronite office nearest you.

ORONITE CHEMICAL COMPANY

38 Sansome St., San Francisco 4, Calif. • Standard Oil Bldg., Los Angeles 15, Calif.
30 Rockefeller Plaza, New York 20, N. Y. • 600 S. Michigan Ave., Chicago 5, Ill.
Mercantile Securities Building, Dallas 1, Texas

2000

AT THE HEAD OF ITS CLASS...

Columbia's MODEL 12 Three-Block



1. Highest quality 3-block production.



2. Produces 5 to 6 pallets of blocks per minute.



3. More production from less floor space.

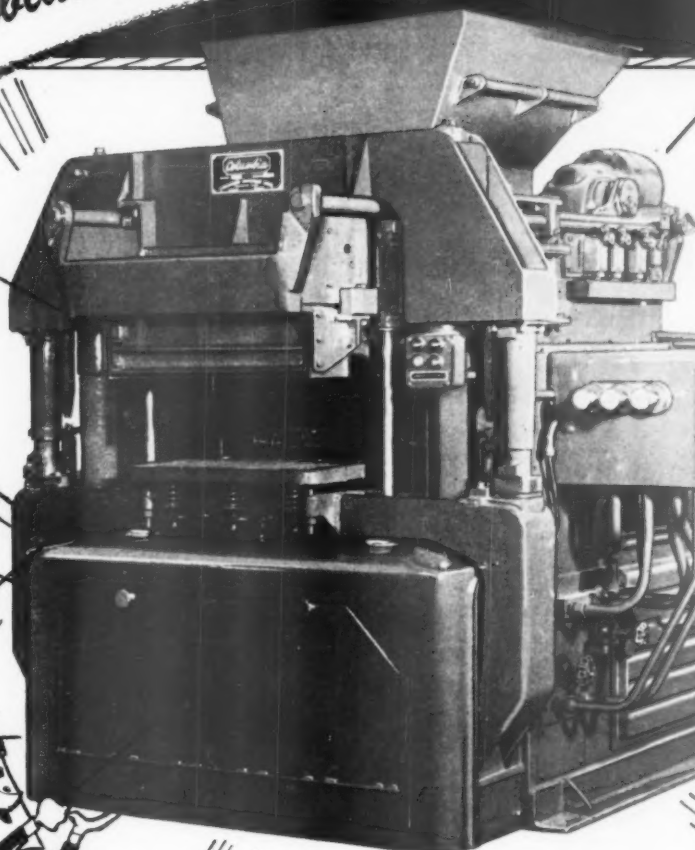
4. All moving parts enclosed for easier maintenance... cleaning and greater safety.



5. Fully-automatic or hand operated hydraulic operation.

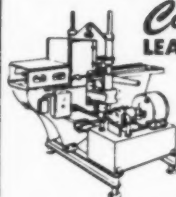


6. Available on lease-purchase or outright sale!



MAKE '54 YOUR HIGH PRODUCTION YEAR... GRADUATE TO Columbia's 3-BLOCK, MODEL 12

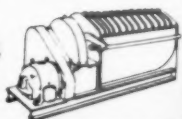
A Compact 3-block machine that's proven successful in the field, hits 5 cycles plus per minute, makes clean-cut, precision blocks that pass more rigid inspections, reduces culls, produces more profit for its owner.



BATCH MIXERS

12, 25 and 50 cubic ft. sizes

Double profit with split blocks for '54! Investigate Columbia's Block Splitter line!



INVESTIGATE COLUMBIA'S COMPLETE LINE OF ONE, TWO AND THREE-BLOCK MACHINES TODAY. WRITE FOR FREE CATALOG!

Columbia MACHINE

Home Office: 107 S. GRAND, VANCOUVER, WASHINGTON
Factory Branch and Warehouse at Mukwanago, Wisconsin

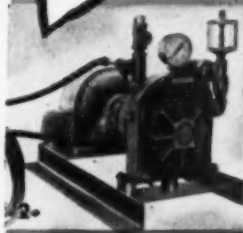
District Offices in: Wisconsin, Ohio, South Carolina, Mississippi, Florida, New Jersey, Virginia and California.

HAVE YOU OVERLOOKED ANY OF THESE IDEAS?

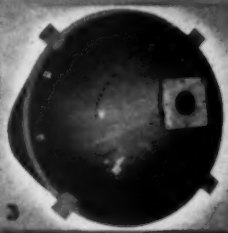
There are places in your batching and mix plants where these low-cost Johnson accessories can profitably increase efficiency on the storage and batching of aggregates and cement . . .



Pivoted Distributor
feeds aggregates into multi-section bins. It turns and locks into position by ground-level control.



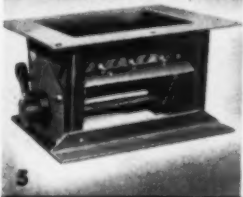
Rotary Vane Compressor
supplies 7 cu. ft. of air pressure per minute to aerate cement silos and bins. Has 15-pound limit-relief valve.



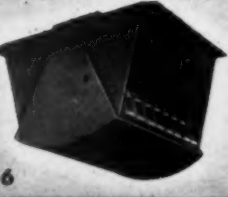
Aeration Fittings
properly spaced in storage silos and tanks keep bulk cement fluid and free-flowing at all times.



Bin Gauges and Signals
accurately register "hi-lo" levels of aggregates or cement. They are dust-proof . . . operation is automatic.



Rotary Plug Valve
controls flow of cement from silos into screw conveyors. It's also used as a fill valve in cement batchers.



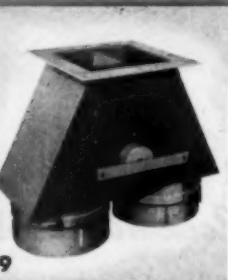
Aggregate Fill Valves
single-clam, radial-type, have choker weights for jam-proof closing with large aggregates. Hydraulic pressure lub.



Receiving Hoppers
all sizes, types for box-car, hopper-bottom car, truck, or bag delivery of cement. All-welded, weather-tight.



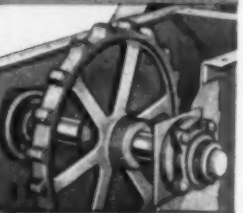
Elevator Buckets, Chains
3 types, 7 sizes of buckets for aggregates and cement. Long-life steel chain has carburized knuckles.



2-Way Elevator Discharge Valve
is a flap-type chute which directs flow of cement from elevator into bin storage tank, or silo.



Tunnel Gate
a single radial clam gate for stockpile reclamation. Skirt board is hinged, opens and locks in any position.



Chain Sprockets
19-tooth chilled-iron cast iron with heavy split hub and double-rim lugs. Also, 12-tooth cast-iron sprockets.

Mail to: **C. S. JOHNSON CO.** CHAMPAIGN, ILL.
(Koehring Subsidiary)

Send us details on items checked: 1 2 3 4 5 6 7 8 9 10 11

NAME _____

TITLE _____

COMPANY _____

DIVISION _____

STREET _____

CITY, STATE _____



RPAC 21

9%

GRAVITY DUMP never balks . . . never wears out. You get the same one-second dumping every time . . . under heaviest loads, and in all temperature extremes. There are no hoist maintenance delays, no costly hoist replacement parts to eat into profits when you use gravity-dump Dumpsters.

MORE OUTPUT



... with ONE-SECOND gravity dump

In just one second, Koehring heavy-duty Dumptor dumps its 6-yard load. Operator trips the body-release lever, and gravity tilts the scoop-shaped body 70°. One second later the load is out, and Dumptor is on its way back for the next load.

Because there's no waiting for slow-acting body hoists, Dumptor saves 15 to 25 seconds on every dump. This earns an important increase in extra yardage output. For example, take a typical 1,000-foot haul where an ordinary dump truck is making 16 trips an hour. Even if Dumptor took the same

time to load, haul and return, it would average 17½ trips per hour on the same cycle. That's because Dumptor's one-second dumping advantage saves an average of 20 seconds on each trip . . . gains a total of 5.3 minutes more productive haul-time per hour. This, alone, adds 9% more yardage to your average hourly production.

What's more . . . by eliminating only 2 turns each trip, Dumptor no-turn shuttle-hauling adds another 10% increase in yards per hour. You'll find Dumptor® well worth looking into. See your Koehring distributor soon.

CK338

KOEHRING COMPANY



MILWAUKEE 18, WISCONSIN
(Subsidiaries: KWIK-MIX • PARSONS • JOHNSON)

*Soaring to New Heights
in Truck Mixer Design!*



**DELUXE
MODEL**

SMITH Scores Another ***First***

Smith was the *first* high discharge truck mixer . . . *first* to eliminate the need for hoist or ramp . . . *first* with a controlled discharge . . . *first* to provide visible mixing . . . *first* with feed chute charging . . . *first* to announce fluid drive as standard equipment . . . *first* with LOAD-LIMIT models. And now, Smith is *first* to come out with a

New 2-Speed Transmission Built to Aircraft Specifications

You know Smith-Mobiles have always had smooth-running, dependable transmissions. Now — the new De Luxe Model Smith-Mobile has a 2-speed transmission, even more dependable and as smooth-running as a watch. You can drive the drum at 2½ R.P.M. with no laboring of the engine and no surging. Or, you can run it as fast as you want. This new transmission is built to aircraft tolerances. It has Helical cut, heat-treated gears in a rugged, cast case . . . yet it is several hundred pounds lighter. The enclosed, multiple disc clutches run in a bath of oil.

The new De Luxe Model was completely redesigned for even greater efficiency. Gross weight is cut nearly 800 lbs. The overall length is much shorter. Better weight distribution allows bigger legal payloads. And it has the most accessible engine of any truck mixer on the market. All this, without any increase in price. Get the facts. Ask your Smith distributor for literature.

THE T. L. SMITH COMPANY

2883 NORTH 32ND STREET • MILWAUKEE 45, WISCONSIN, U. S. A.

Affiliated with ESSICK MANUFACTURING CO., Los Angeles, Calif.

Transmission by Foote Brothers Gear and Machine Corporation. Designed and built especially for the T. L. Smith Company. Note the duty-rated, lifetime Helical gears and ground shafts, made of special high alloy nickel steel. Machined to amazingly close tolerances that assure long life and trouble-free operation. What other truck mixer has anything approaching this in high quality design and construction?



CONCRETE MIXERS

For BIGGER and BETTER Concrete Mixers and Truck Mixers . . . LOOK TO SMITH



BURMEISTER'S THE *BUY!*



WET

BURMEISTER CENTRAL MIX PLANT WITH MIXER ENGINEERED TO THE PLANT

Here's a central mix plant that's *economy engineered*. The famous Burmeister Tilt-Up Mixer actually reduces plant height. This increases portability, lowers power requirements, means fewer buckets, shorter belts and boom for crane loading . . . substantial savings for the ready-mix operator. Mixers are available in 3, 4, 5, and 6 cu. yd. capacity; aggregate and cement bins, any capacity. Burmeister mixers are acknowledged as the most advanced in engineering for four important reasons: (1) their exclusive space-saving tilt-up discharge; (2) twin drive; (3) scientific "two-fold" action; and (4) hydraulic tilting mechanism.



DRY

BURMEISTER DRY-BATCH PLANTS FEATURE EXTREME PORTABILITY AND FLEXIBILITY

When you start with a Burmeister dry batch plant you enjoy a minimum initial investment and low erection and operating costs because of their simplified construction. You'll find you get fast, accurate batching. Standard equipment includes a large-capacity cement elevator. Other design features include: elevator drive mounted on head on large machinery platform; use of toggle clamps instead of cover bolts speeds disassembly at screw conveyors. Later, you can add a Tilt-Up Mixer that's engineered to the plant . . . your assurance of maximum efficiency, minimum cost.

L. BURMEISTER CO., 4529 W. MITCHELL ST., MILWAUKEE, WIS.



Burmeister

COMPLETE PLANTS FROM A SINGLE SOURCE

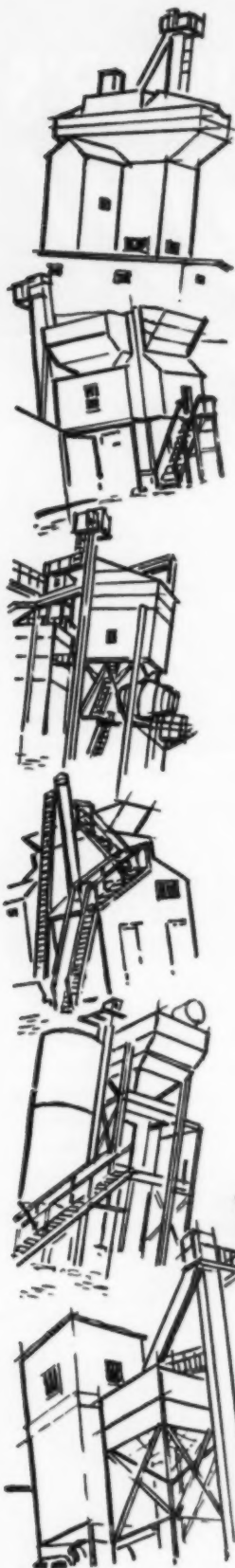
Mail Coupon for Complete Details!

L. Burmeister Company
4529 W. Mitchell Street
Milwaukee, Wisconsin

- ☐ Please send me your complete catalog.
I am particularly interested in more information about ☐ wet ☐ dry plant operation.
☐ Please ask your representative to call on me.

Name _____
Company _____
Address _____
City _____ State _____





As Competition Gets **TOUGHER** ...You'll Really Appreciate Your **BUTLER** Plant

To maintain a good profit level in a competitive Ready Mixed or Concrete Products market, two things are required:

management know-how

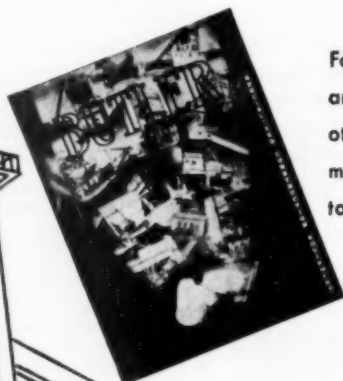
and

the economy and efficiency of a BUTLER Engineered Plant.

BUTLER Engineering starts at the grass roots — your plant site, to take advantage of its terrain. BUTLER Engineering makes careful evaluation of your market and potential for growth as well as availability of materials and their economical transport. And of course, BUTLER Engineering studies all problems in flow of materials, labor saving through automatic controls; production simplicity — all at the lowest practical investment level to meet your customers' service requirements.

Further, although every BUTLER Plant is intensively studied and individually engineered, great economy is obtained by using components of standardized Butler manufacture.

These are sound reasons why your wisest move is to consult the BUTLER Engineer!



For a showing of BUTLER Ready Mixed Concrete Plants and BUTLER Concrete Products Plants together with other materials handling equipment which BUTLER makes, write for Bulletin 260. Send a postcard — today.

BUTLER BIN COMPANY

993 Blackstone Avenue

WAUKESHA, WISCONSIN

This Year ... NCMA Goes to WASHINGTON



NCMA CONVENTION

February
7-8-9-10
1954

SHOREHAM
HOTEL

JOIN THE NCMA

The Besser Company heartily recommends membership in the NCMA for all concrete products manufacturers. Why not attend the Washington Convention and investigate advantages of affiliating with this progressive association? Make your plans — today.



BESSER HEADQUARTERS *For the Latest in Modern, Automatic* CONCRETE BLOCK MACHINERY

You'll find it time well spent to attend the NCMA Convention . . . to rub elbows with men who have the same problems you have . . . to learn of new processes and production methods. And we cordially invite you to visit Besser Headquarters, Room C200. The Besser Company is planning BIG things for its Golden Anniversary Year . . . to help you produce BETTER block, on a FASTER production basis, and at LESS COST.

BESSER MANUFACTURING CO., Alpena, Michigan, U.S.A.

BESSER
50th Anniversary
1904-1954

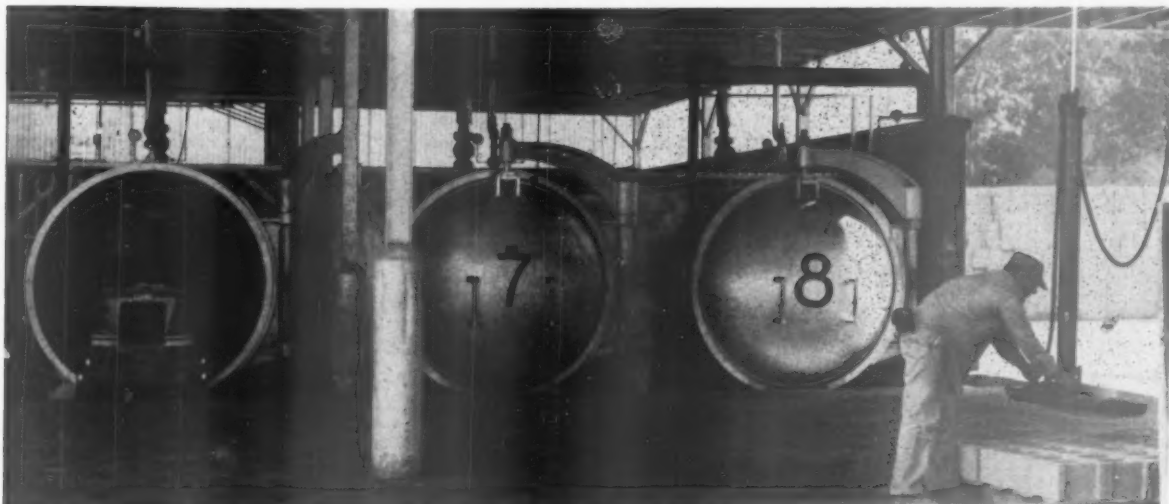
A Half Century of Concrete Masonry Progress



BESSER

50th Anniversary

1904-1954



Showing three of the six new autoclaves. There are also two older units which accounts for the number 8 on the last autoclave door

Industry's Newest HIGH PRESSURE STEAM CURING PLANT In Washington, D. C.

By WALTER B. LENHART

National Brick and Supply Co., at Terra Cotta, suburb of Washington, D. C., installs six new autoclaves in block plant. Use silica flour in concrete mix

HIGH PRESSURE STEAM CURING of concrete masonry units has been in use for more than a decade. However, production has been confined to a few operators (Long Island City, N.Y.; Roanoke and Richmond, Va.; Seattle, Wash.; Oklahoma City, Okla.; Ft. Smith, Ark.—to name a few centers) that have had high pressure steam curing plants in operation for some time. A more widespread adoption of the process by some of the important producers has been slow to take hold even though research studies that date back to the early 30's indicated great improvement in concrete block cured by this system as compared to more conventional methods. During the past year, the pendulum seems to have swung in the direction of high pressure steam curing as several of the eastern producers took steps to install high pressure curing systems, and the first of this group was the National Brick and Supply Co., Inc., at Terra Cotta, D. C., a suburb of Washington, D. C., located almost due north of the Capital.

In the Fall of 1953 the company had an official opening of the autoclave plant attended by nearly 250 contractors, architects, engineers, and others interested in concrete masonry construction.

On September 15 the autoclaves (kilns) were placed in operation. The plant was kept in continuous operation through the construction period.

Also Make Sand-Lime Brick

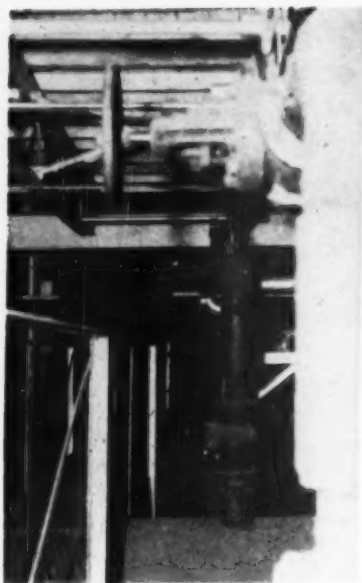
The National Brick & Supply Co. took over operations in 1944, and the autoclaves for the sand-lime brick production were a part of the processing equipment in use at the time of the transfer. However, in the process now used at Terra Cotta some portland cement replaces a part of the lime in the brick as this is said to give a better and stronger brick and one that weathers better than the older straight sand-lime brick. In this section of the plant, the brick are formed in a Jackson & Church press.

With a backlog of experience in autoclave technique, it is easy to understand why National Brick decided to install the system to cure the concrete masonry units made by the two Vibrapacs. During the past year six autoclaves were installed. The kilns are essentially large diameter, horizontal steel cylinders with a suitable, tight-closing door, and of sufficient strength to hold steam pressures in the 140 p.s.i. range. The six new kilns are 117 ft. long with a clear or useable length of 113 ft., and with an inside diameter of 8 ft. 1 in. The

autoclaves were fabricated in Richmond, Va., by the Richmond Engineering Co., using Blaw-Knox quick-opening doors on one end only. The kilns were hauled to Terra Cotta by rail with three flat cars required for each kiln. The units are said to be the largest single piece of any equipment to be shipped into the Washington, D. C., area. The two older autoclaves used for the brick plant are 72 ft. long and 6 ft. in diameter.

Curing System

Although operating under a pressure of 140 p.s.i., and a temperature of 360 deg. F., the new kilns have an ample factor of safety to operate at 155 p.s.i. if desired. Each kiln is provided with two heavy steel vacuum rings that are welded to the shell. They are spaced about equal distances apart along the length of the kiln. These rings are intended to prevent the kiln from collapsing should it become desirable in the future to use a vacuum as a part of the curing cycle. The curing cycle, in essence, is to bring the pressure up to 140 p.s.i. This is normally a 2 to 3-hr. period. The pressure is then held at that figure for an additional 6 to 7 hr. A fast "blow-down" is practiced which is a 30 min. operation. No attempt is made to transfer steam from a kiln com-



Some of the 5-in. exhaust valves for autoclaves

pleting its curing cycle to one just starting. The kilns each hold 36 racks of 72 block each or a total of 15,552 standard 8s, or equivalent. The racks are rectangular and of conventional design.

Kilns are installed parallel to each other with a walking space between. The concrete floor under the units is about 2 ft. lower than the main working floor of the plant, and far enough back from the working floor for the doors to swing outwardly on their supporting hinges. Each kiln is provided with industrial rails that run the full length of the autoclave. Lift trucks, that carry in the loaded racks and take out the cured units, are equipped with solid rubber tired wheels having specially designed steel flanges attached to the hubs. The design permits their use on concrete floors. When the door of a kiln is opened, a short length of industrial trackage is used

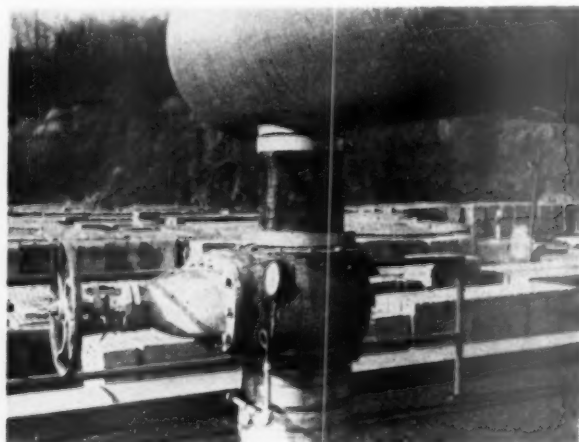
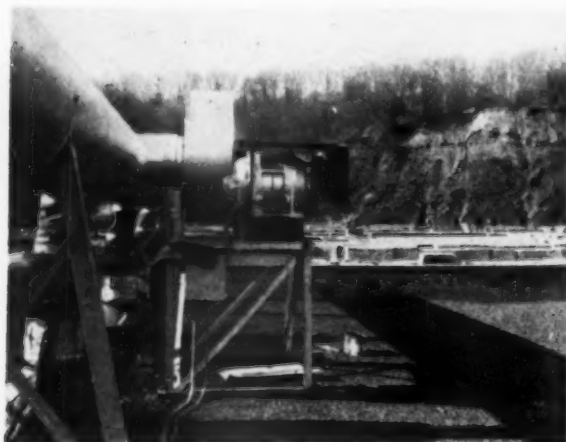
as a bridge to connect the main concrete working floor with the trackage in the kiln. A monorail, supporting a suitable chain block assembly, runs in front of all the kilns, and is used to move the bridge as required, and for other purposes. It is hand operated.

Each kiln rests on six steel saddles welded to the shell of the kiln. These saddles in turn rest on steel friction plates embedded in the concrete floor to allow for lateral movement of the kiln due to expansion and contraction during the heating and cooling. At the outset of operations each kiln was anchored at the front saddle with the expectation that all movement due to expansion would be toward the rear end. However, during early operations, possibly due to the friction plates not being ground smooth enough, the kilns broke loose at the front end. This has been corrected by anchoring the kilns at the second saddle. The overall movement at the rear end is about $2\frac{1}{2}$ in. and about $\frac{1}{4}$ in. at the front end. All incoming steam pipe fixtures are at the front end of the kilns, and this small movement is accommodated in the piping design. The shells of the kilns are insulated with 2 in. of blanket fiberglass made by the Justin-Bacon Co. The insulation has proven very satisfactory. When the kilns are at their maximum operating temperature (360 deg. F.), and held at that temperature for considerable time periods, the outer surface of the fiberglass is only slightly warm to the touch.

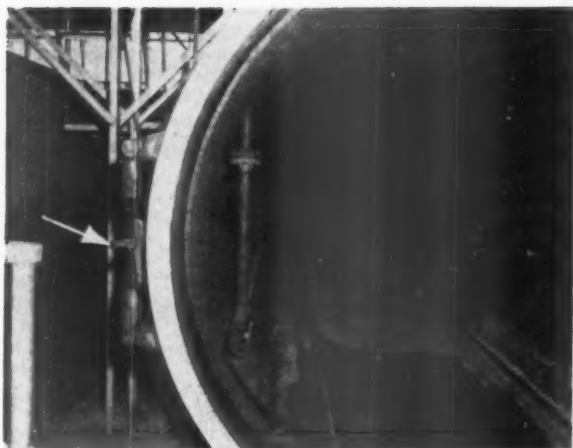
All piping for the incoming steam is very close (and above) to the front end. From the boiler room, a 6-in. diameter insulated steel pipe carries the steam to a 6-in. header that runs over the top of the kilns. The header is at right angle to the long axis of the kilns. The header pipe is reduced to 4 in. over the three end kilns. A 2-in. diameter line takes off from the header into the front end of each kiln with steam controlled by a globe valve that is opened full at the start

of the curing cycle. The non-use of a cracked valve at this point is said to reduce the wear on the seat of the valve thereby giving it a longer life. After the 2-in. pipe goes through the shell of the cylinder it connects with a 2-in. line that runs the entire length of the kiln. The pipe is provided with twenty $\frac{1}{4}$ -in. diameter holes spaced along its length. The pipe is mounted on one side of the kiln and about 2 ft. above the center floor line. Condensate escapes continuously from an outlet at the center floor line and near the front end of the kiln. This hot water is returned back to the heat exchangers. Near the front end and on top but back from the incoming steam line is a 5-in. exhaust line that is controlled through a 5-in. globe valve. This steam is exhausted to the atmosphere through a manifold with twelve 5-in. nipples. At the rear end of each kiln is a second larger exhaust outlet. It is a 12-in. diameter outlet and each connects to a 30-in. header. This assembly is located on the roof of the building housing the autoclaves. Near the center of the header is a 30-in. exhaust fan to exhaust the kiln. The 12-in. nipples that connect the 12-in. gate valves to the header are each provided with a heavy fabric sleeve to allow for lateral movement of the kiln directly below each 12-in. valve. The inside of this sleeve has a wire spring coil to hold it in the full-open position.

The quick-opening type Blaw-Knox doors use a steel split ring to seal the closure. In the casting that forms the seat for the door and which is welded to the shell assembly, is a recessed groove that goes around the end casting. In this recessed groove is a split, rectangular (in cross section) steel ring that is roughly 2 in. square. The ring is split to form two semi-circles. One of the ring sections forms most of the top half of a circle, and the other half forms most of the invert. The steel rings take up all but about 8 in. of the longitudinal space in the annular groove, with each



Left: The 30-in. exhaust fan, on roof over autoclaves, connects with header. Right: Close-up of one of the 12-in. gate valves which has a sleeve to allow for expansion and contraction



Left: Tracks leading into autoclave. Arrow points to the mechanism for bringing the two ring ends together in sealing the door. Right: Lift truck equipped with special wheels having flanges which, in the illustration, permit operation over "bridge" connecting autoclave with working floor



semi-circular half being separated from each other at the ends by about half of the 8 in. or 4 in. When the door to a kiln is in the open position these rings are drawn back completely into the recess forming a flush surface with the groove in the end casting. In the door casting itself is a similar grooved recess.

When the door is closed the two grooved recesses are directly over each other with the split ring being in the groove of the kiln end. When the door is in the closed position, the operator, by the use of a right and left hand threaded closure mechanism, located alongside the door, completes the operation of sealing the closure. During this operation the two halved rings are drawn together and into the recessed groove in the door itself. This draw-down is sufficient to form a complete and true circle in the annular groove of the door assembly, and to thereby form a continuous circular latch or seal between the end casting and the door assembly. It requires only a few minutes to close a door and a 15-in. Crescent wrench is adequate. In the end casting of the kiln itself is another circular groove that receives a gasket of the single lip type. The gaskets that came with the kilns lasted 80 cycles, and were replaced with units that lasted only 40 cycles. Neoprene gaskets are now being used and appear to be the most satisfactory of any tried. The operators are still experimenting with different types of gaskets.

Steam for the kilns is supplied by a 250-hp. Titusville water tube boiler that operates at 100 percent over its rated capacity. This unit was the source of steam for the previously used low pressure steam curing system. The boiler is oil fired with a Preferred Utilities Engineered automatic burner. A licensed steam engineer (3-d Class) is in attendance at all times. The cost of the autoclave installation, without the boiler, is in the \$225,000 range. Doors cost \$9000 and the shells \$11,000 each. Steam fittings totalled some \$20,000.

Use Silica Flour With Cement

The economic advantages of high pressure steam curing hinge on the fact silica flour can be advantageously used as a partial replacement for portland cement. Silica flour is currently priced at around \$7 per ton f.o.b. point of shipment. The use of silica flour produces a block that is stronger in tensile, shear, and compressive strengths. It is very durable, has very low shrinkage potential, and the block has a very pleasing texture. At the operation of the National Brick & Supply Co., Inc., silica flour is added to the mix in the proportion of 150 lb. of silica flour to 250 lb. of portland cement. A small amount of hydrated lime is also added. This is normally 25 lb. per 250 lb. of cement. Cinders and some washed commercial sand are the other aggregates used in the mix. With this mix and high pressure steam curing, a much whiter block is secured and one that rings like a bell when struck a sharp blow. This property of ringing like a bell is one

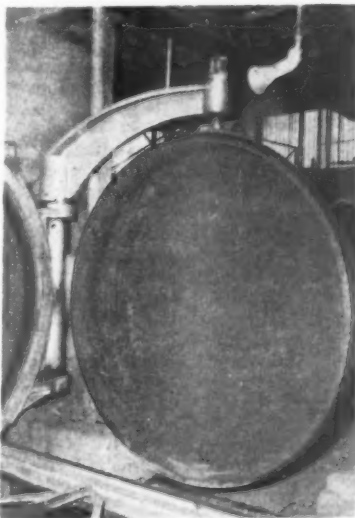
of the sales slogans for the unit adopted by National Brick.

Under high pressure steam curing, the hydration of the portland cement is said to be complete and all the desirable properties that result are permanent. The expansion and contraction due to moisture changes, or to temperature changes, or both, are reduced in the order of 50 to 60 percent and there is no progressive expansion or contraction over the future life of the block as may be the case with block cured by other methods. The blocks so cured are more durable for one concrete authority holds that the free lime liberated in the setting of portland cement is a real troublemaker. As durability is often overlooked in the quest for early and high compression strengths we quote what this authority has to say on the subject:

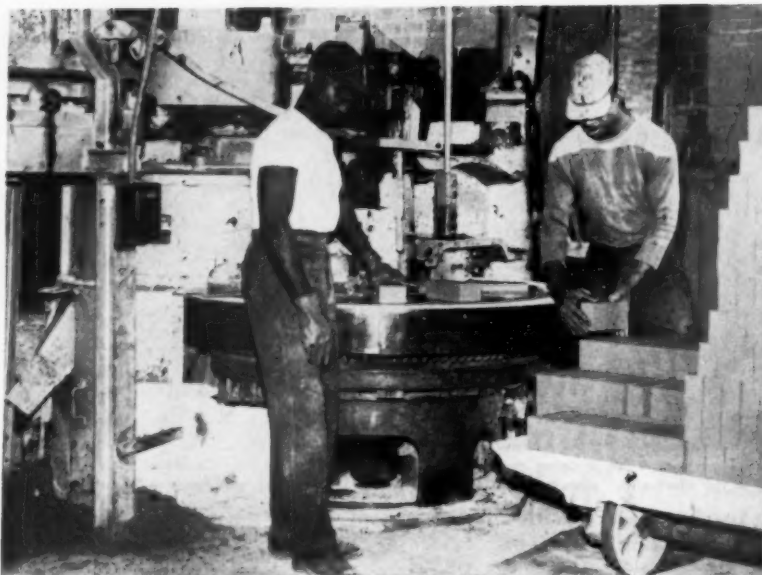
"When portland cement gets through hydrating and setting, it is supposed to have from 15 to 20 percent uncombined hydrated lime—surplus over the lime required to make the so-called hydrated calcium silicates. Hence the object of adding pulverized silica is to "fix" this excess hydrated lime as $\text{CaO} \cdot \text{SiO}_2$; the proportion of silica used would be somewhere on a 1:1 molecular basis. The molecular weight of lime is 56 and of silica 60, so it means roughly that one could use up to 20 percent by weight of silica to portland cement—probably in practice not over 15 percent is used. Any excess silica can do no harm. The excess lime, I believe, is the beginning of all concrete troubles."

On the basis of 150:250 silica flour to portland cement ratios, National Brick uses enough silica flour to fix the lime liberated in the portland cement setting process, and any lime added at the mixer.

Compression strengths of H.P.S.C. block are considerably greater than would be secured using an all portland cement-aggregate mix, and low pressure steam curing. When using anthracite cinders as the main coarse



One of the quick-acting, tight-fitting autoclave doors



Sand-lime brick section of plant with brick press in action

aggregate, adding a small amount of lime tends to hold water in the block, and also acts as a plasticiser. This free lime is also available to react with the silica flour at lower temperatures, i.e., during the warm-up period in the autoclave.

Some work was conducted at Terra Cotta, using fly ash as the replacement for portland cement but silica flour was finally adopted as it gave a better texture and color and is uniform in quality. The silica flour currently used comes from the Millville, N. J., operations of the National Pulverizer Co. It is 95 to 97 percent minus 200 mesh. Silica flour in this screen size has normally from 76 to 83 percent minus 325 mesh material in it. The silica flour is manufactured from a washed and graded sand and, after drying, is ground to the required fineness in tube mills. The silica flour used at Terra Cotta has the following analysis:

SiO ₂	99.61 percent
Fe ₂ O ₃	.05 percent
Al ₂ O ₃	.19 percent
Ti O ₂	.04 percent
Ignition loss	.11 percent
	100.00

Silica flour, to react quickly with lime, must be practically pure silica. All faces of the silica particle must be clean and free from any foreign coatings so that an intimate contact between the lime and the silica is assured. Coatings of any type; iron oxide, etc., and in any amount tend to insulate the lime from the silica and this can inhibit or retard the reaction. Silica flour in normal concrete requires considerable time to complete the chemical reaction. Autoclaving completes the reaction in a matter of hours.

Portland cement and silica flour are shipped by rail to the plant in

bulk. In the plant, overhead bins and weigh batchers are ahead of the 50-cu. ft. Besser mixers. The Vibrapacs are equipped with the M & M system of quality control. This is an electronic device that controls the height of the block, the squeeze time, the feed box dwell, the weight and duration of the vibration, and other factors that are essential to the manufacture of a uniformly high quality concrete block. Johnson cement bins are used with a company-made silo for the silica flour. Intraplant transportation is by means of two Clark's and three Towmotors. Plans are being made to revamp the cinder and other aggregate handling equipment at the plant. This plan involves the use of belt conveyors to reclaim from storage piles without the use of overhead bins. The Bessers are provided with a company-made pallet return system in which the operator picks up the clean pallet with a magnetic lifting device, drops the pallet to a roller conveyor system that delivers to the rear of the machine.

Concrete Floor System

In addition to the manufacture of high pressure steam cured concrete-sand-lime brick, and the autoclaved concrete block, the Terra Cotta operation includes facilities for the manufacture of NABCO planks. This operation goes under the name of the Nabco Plank Co. and uses the Dox Block system for the production of pre-cast, reinforced concrete floor, roof, and beam members. The structure over the new autoclave section features NABCO plank roofing.

Edmund H. Brooke is vice-president and general manager of the National Brick and Supply Co., Inc. Mr. Brooke is a director and vice-president of the National Concrete Masonry Association. James I. Schwartz is engineer. He is a member of the A.C.I. and

A.S.T.M. John Hanfman is plant superintendent. The high pressure steam curing plant was designed by W. E. Shore, consulting engineer, New York City, and built by the company staff.

Masonry Partition Tests

THE NATIONAL CONCRETE MASONRY ASSOCIATION is conducting a second series of tests to determine the effectiveness of plain and painted concrete masonry partitions in preventing sound transmission. The tests are being conducted at Riverbank Acoustical Laboratories at Geneva, Ill., and are expected to be completed in 1954. The first series of tests included plain and painted partitions, 4 in. and 6 in., in nominal thickness built of hollow and solid units of lightweight aggregate types. In the second series, single wythe partitions of units made with dense aggregate are being tested, involving 4-in. hollow and solid units and 6-in. and 8-in. hollow units. Double wythe walls, with each wythe made of 4-in. hollow units, are also being tested. In this group the effect of several variables will be studied: the width of air space between the wythes; back plastering the cavity side face of one wythe; and the dissimilarity between wythes obtained by building one wythe of dense aggregate units and the other with lightweight aggregate units. In order to extend the data being developed on the effect of wall thickness and mass on sound transmission properties, 8-in. hollow block, single wythe walls of both dense and lightweight aggregate types are being studied.

Home Builders Exposition

THE TENTH ANNUAL CONVENTION and exposition of the National Association of Home Builders will be held January 17-21, 1954, at the Conrad Hilton and Sherman Hotels, Chicago, Ill. Approximately 300 firms will be participating in the exposition, with a record total of 500 exhibit spaces which will fill all available exhibit spaces at the two hotels. A record attendance at the convention and exhibition is also predicted.

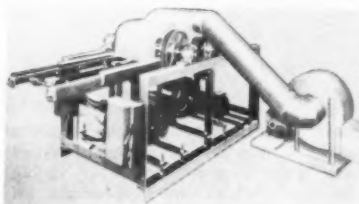
Reports from the exhibitors indicate that a number of new products will be displayed. Products to be shown are said to include nearly every building product or unit used in home construction.

The convention program will cover various aspects of home building, including the technical side, the management side and the national policy side, according to the convention chairman, Henry Fett, Royal Oak, Mich. Technical clinics of "how-to-do-it" sessions will be held, as well as sessions on mortgage financing, selling and merchandising methods, and reports on new research developments. The program is being planned with special emphasis on the needs and interests of the smaller-volume builders.

NEW MACHINERY

Pallet Cleaning Machine

BERGEN MACHINE & TOOL CO., INC., 189 Franklin Ave., Nutley, N. J., has a concrete block pallet cleaning machine which is said to clean crusted

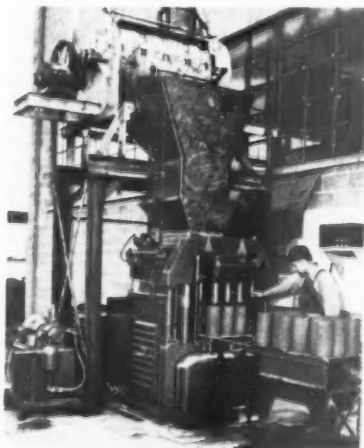


Machine cleans concrete block pallets at a rate of three to five per minute

pallets, regardless of how thick or hard the concrete "crust" may be, at a rate of three to five pallets per minute. The machine may be leased from the company at a cost of 15¢ per pallet, as well as purchased outright.

Concrete Block Machine

COLUMBIA MACHINE, Vancouver, Wash., has brought out a concrete block machine that produces drain tile, flue liners, water meter boxes and other hollow shapes, as well as standard block types. A high velocity agitator which embodies a "super churning" action is said to insure quick delivery of uniform batches into the molds. The machines are basically the same as the Model 8 (two block) and Model 12 (three-block) machines, using standard Columbia molds and standard racks and pallets. An innovation is the introduction of 12-in. high molds, permitting the production of shapes which will fit into a mold opening of 18 x 12 x 16 in. on the Model 8, or 24 x 12 x 18 in. on the Model 12. The machine produces



Combination tile-and-block machine produces eight tiles per pallet

three to four pallets of concrete units per minute on the 12-in. high molds, and faster on units 4 to 8 in. high. Such features as automatic pallet feeding, electronic height control, and choice of automatic or manual operation are included in the machine.

Additional Payload Mixer

THE WHITE MOTOR CO., Cleveland 1, Ohio, has introduced the Model WC-2284 "Centipede" transport with a 5½-cu. yd. transit-type mixer, featuring a steering pusher single-tired axle mounted ahead of the tandem drive axles. The truck is equipped with power steering and a two-way radio communication system. Fully equipped, the unit can handle a 24,000-lb payload and 100 gal. of tank water within state limitations, with a weight distribution of 8580 lb. on the front axle, 9000 lb. on the steering pusher axle, and 31,290 lb. on the tandem axle. The steering pusher axle steers with the front axle at a rate of one degree for each three degrees of front axle steering. It is independently mounted and provides



Transit-type mixer has a capacity of 5½ cu. yd., and features a steering pusher axle

road stability on rough and uneven ground conditions. The truck has a wheelbase of 165 in. from the center line of the front axle to the center line of the third axle, and features puncture-proof tubes for all 12 tires on this model.

Fork Lift Truck

MOBILIFT CORP., 409 S.W. 13th Ave., Portland 5, Ore., has developed the "D-424" 4000-lb. capacity fork lift truck, with a 24-in. load center, which is powered by a Chrysler 6-cylinder, 65-b.h.p. industrial engine. A Chrysler Gyrol fluid coupling is used in conjunction with a multiple-disc, oil-immersed clutch and constant-mesh transmission. A four-pinion differential with full floating axles is used to complete the assembly. There is no clutch pedal and no gears to shift, as all forward and reverse movement is activated by a push-pull Lev-R-Matic control placed for right hand operation. Another push-pull lever controls the two-speed transmission which gives a high range of 11 m.p.h., and 5¼ m.p.h. in low range forward and reverse. Hoisting on the



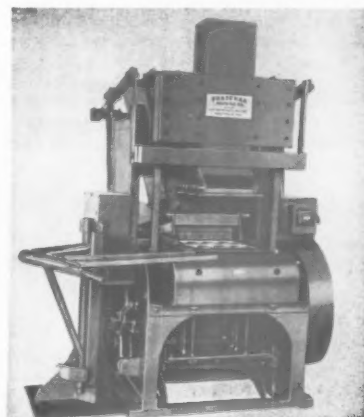
Lift truck with 4000-lb. capacity

truck is by a displacement type hydraulic cylinder. Ball bearing rollers guide the telescoping channels. Standard mast height is 83 in. with a lifting height of 108 in. Optional masts and lifting heights are available.

Concrete Block Machine

PRASCHAK MACHINE CO., Marshfield, Wis., has announced the 1954 model of the "Automatic 400" block machine which uses a cored type pallet. The company will equip the machine to fit any standard cored type pallet with oval, rectangular or square core openings and made of pressed steel, cast iron or aluminum. The same pallet for making the 8-in. block, is used with small attachments for production of corners, sash, bull nose, pilaster, and header blocks. Two synchronized mechanical vibrators, mounted on each end of the mold box, are used to pack the block and to produce an even texture and smooth dense consistency. To further pack and finish the block, powerful press heads are used.

The operating mechanism consists of a few slow moving cams that insure positive action. One-man-operation



Block machine utilizes the cored type pallet for various openings

tion of the machine and off-bearing the block, permitted by the automatic cycle design, is a feature. It has a rated capacity of 400 standard 8-in. units per hr.

Concrete Masonry Industry Enters A COMPETITIVE ERA

Outlook for business is optimistic provided industry steps up sales activities. N.C.M.A. has expanded program for promotion that deserves wholehearted industry support

By BROR NORDBERG

ACCORDING TO THE U. S. DEPARTMENT OF COMMERCE, the Bureau of Labor Statistics and other authoritative sources on construction, there may be a slight decline in total new construction comparing the year 1954 with 1953. They expect that the drop will be approximately two percent from a total of \$34½ billion in 1953 to \$34 billion which indicates that 1954 may end up as the second best construction year in history.

On the surface, this would indicate a good year for the concrete masonry industry, which it should and can be, but it is the distribution of contemplated new construction in these estimates that sets up the pattern for business in the concrete masonry industry. Highway building and other classes of heavy construction which are not directly markets for the vast majority of concrete products manufacturers will swell the total and offset expected moderate declines in other classes of construction. There also will be adjustments in the activities by classes of construction that should guide the course of action by concrete masonry producers.

Industrial, farm and defense construction are expected to show small declines in volume of building, whereas certain classes of commercial and public building will show an increase.

The building of utilities, stores, schools, churches, recreational buildings and other structures in similar category likely will show increased activity. Various estimates have it that non-farm housing starts will decline possibly a few percent under the 1.1 million total of 1953, which points up a challenge to producers specializing in that field. Farm income declined approximately \$2 billion in 1953 which will reflect in an estimated 10 percent decline in farm construction through 1954. Industrial building is slated for a 4 percent downturn in volume. Overall, 1954 will be a good year but one that will take more hard work to make it so, and it is the belief of aggressive businessmen that a good job of sales promotion and advertising could more than recover the expected declines.

Should building have a recession, which appears unlikely, the federal government has in mind the possibility of lowering the credit requirements and payment requirements for FHA-insured homes. Government insurance may even be extended to commercial building if considered necessary and we can anticipate more public works.

We asked concrete masonry producers to give their impressions on prospects for business and to tell of their plans to meet the challenges of 1954. A number of informative letters were received in reply to our questions which we appreciate and herein briefly summarize. We asked for comments on (1) steps being taken to insure as good profits in 1954 as in 1953, (2) provisions for additional facilities and replacements to maintain efficiency, (3) the volume of business in 1953 compared to 1952 and expected in 1954, (4) the introduction of new products and the development of new markets, (5) whether profits may be maintained at reduced rates of production, and (6) the principal handicaps to doing business in 1954.

Step Up Sales Promotion

A great number of producers apparently are prepared to step up sales promotion efforts, to concentrate on improving quality, effect more efficiency in production and provide better service. Quite a few companies are going to bring out new lines of roof slabs, or are taking on a line of products such as facing units, new lightweight aggregate units, floor and roof slabs, or are taking on a line of building supplies including steel sash, door frames, etc., in order to broaden markets. One company is going to provide a choice of three lightweight aggregates for the manufacture of precast concrete slabs. Some new plants are under construction and many of the newer automatic-type block machines and various labor-saving machinery are being installed to reduce unit costs. More attention is being paid to cost accounting and some of the smaller companies are, for the first time, starting to advertise in newspapers and over the radio. Some are going into the promotion of concrete masonry homes.

A vast majority of those who replied to our letter are prepared to go ahead with normal or increased expenditures for additional facilities and replacements even though anticipated volume of business might be less in 1954 than in 1953. The industry obviously has become cost conscious and intends to eliminate high-cost operations wherever practicable. Loading facilities, improved yarding facilities and additions to delivery equipment are being installed to speed up and improve handling and service. Some

7 ways to give your yet keep costs

CONCRETE

one two three

four five six

seven

project homes a "custom" look down with ...

MASONRY

NATIONAL CONCRETE MASONRY ASSOCIATION

Typical example of national advertising to reach home builders



Car card advertising, bulletins for the master mason, and N.C.M.A. display aids will be made available

bulk cement bins are going in where the use of sacked cement was former practice.

Approximately 80 percent of our sample reported that volume of business had increased in 1953 compared to 1952, 13 percent said that volume held even and 7 percent had less business. Increases were in the 10 to 15 percent range with a high of 25 percent in the case of a producer in North Carolina. As far as 1954 is concerned no particular pessimistic reports were received although some are a bit uncertain. Typical of remarks were those by producers who reported that business has been good but could have been better. For example, a producer in Minnesota who had depended upon industrial and commercial building, is setting out to crack markets in the building of homes, schools, churches and municipal buildings. As was to be expected some concern is being felt for possible inroads by competitive materials of industries with tremendous potential capacity.

To Add New Products

Some 60 percent indicated that new products are to be added, or markets enlarged, which is an indicator that they are preparing for more competition for business. Among newer products to be added, in addition to those already mentioned, are prestressed concrete, beams, lintels, sills, roof slabs, products of different aggregates,

units with special facings, curb stones for parking lots and various lines of building supplies related to concrete masonry construction. Practically all say that they can operate at a profit, in the event that reduced rates of production be necessary.

Handicaps to doing business, as listed, bear out that the industry is faced with the necessity of an intensive program of sales promotion to hold its volume up, or to develop new outlets to replace losses in present markets. Those in farming areas have expressed concern with the reduction in farm income while some others have experienced that raises in interest rates and lack of mortgage money are adversely affecting their business.

There are instances of competitive selling that are reflecting in price cutting, which are being met by stress on quality of product. Some of this price cutting is coming about because there are too many contractors per job. Inexperienced contractors are the guilty ones in some cases. Several producers mentioned that the influx of new competitors of large capacity is cutting into markets, apparently referring to prefabricated and dry-wall construction, brick and frame veneer and such other products other than concrete masonry. Among other handicaps listed are availability of competent labor, shortages in raw materials, inferior quality of available aggregates, local cement shortages and increased costs. One producer said

that the determination of credit risks was his number one problem.

Typical of the more interesting comments from a few of the letters are the following:

Michigan: "We intend to improve quality control and preach quality of products and services as compared to imitators and competitors. Also, we will improve production methods to reduce manufacturing, loading and shipping costs.

"We shall increase rather than 'maintain' normal levels for these expenditures. We anticipate a large increase in sales volume.

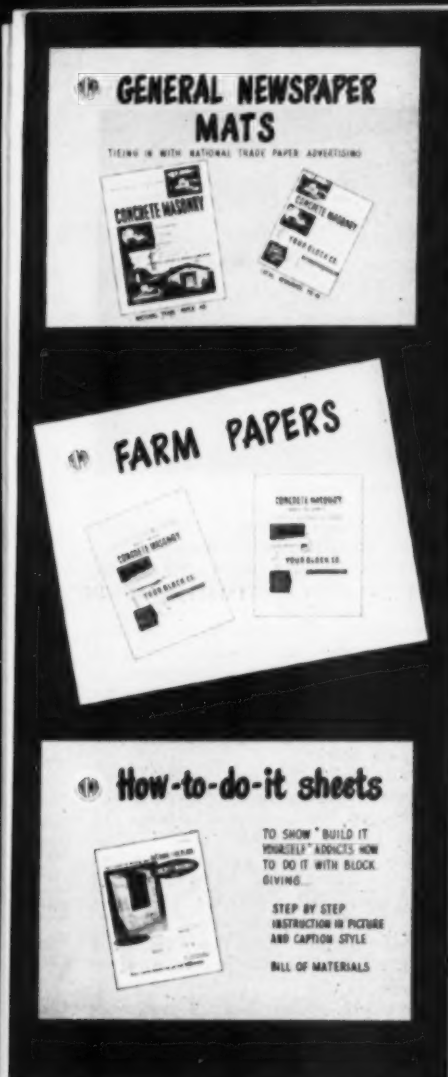
"Business in 1953 was good but less than we might have done. Industrial and commercial were our mainstays last year. We hope to crack the residential market and increase our schools, churches, and municipal sales volume.

"We are adding new products all the time to our line. The latest addition is a curbing special for parking lots to control the arrangement of the parking area.

"Availability of financing for industrial expansion is the biggest handicap. Seasonal shortages in raw materials and road restrictions for shipments are also handicaps. I think raw material suppliers and aggregate people in particular should become more 'quality' conscious. Ceaseless vigilance in quality control and continual efforts at developments that improve both the quality of products



Educational motion pictures, reprints and preprints of advertisements and publicity stories, and billboards can be very effective



Newspaper advertising mats tied in with national trade paper advertising, advertising copy for farm papers, and "How-to-do-it" sheets are some of the effective sales promotion activities which will be carried out

and services will be the hallmarks of growing businesses."

Tennessee: "We have looked forward to a softening of the market in 1954, but recent information indicates that 1954 probably will be a very good year. The housing industry now believes that there will be over a million houses and this means that the housing market should stay up as well, or possibly even better than 1953. However, we are bringing out new lines of materials, particularly in facing units, and are attempting to bring out other new products which will give us a broader market for what business is available. We are also doing all we can to increase our efficiency so that if the market softens we will not only have a broader line, but will cut our costs to where we can still compete and make a profit.

"We are definitely figuring on an expansion program for our new products and the revamping of some of our other lines that we are already

producing which will give us increased efficiency at lower cost. We feel that it is necessary not only to invest in maintenance and increased efficiency, but to expand, if not for the immediate year ahead, for the other years ahead which we feel will be good business years.

"Our volume of business in 1953 was around 12 percent more than in 1952. Also, the prices have held up better and our business as a whole will show a fairly good increase. We do not keep a record on the sale of our products by different types of building. We do know that we have had good volume in homes, industrial and commercial, but have no idea what percentage of each has used our products, therefore, we are unable to give any idea of the expected change of volume by classification.

"As stated above, we are in the process of designing equipment and plant for various new products as well as the revamping of some old products. We are doing this not only to expand our market due to the possible drop in volume, but also some of these products are very attractive from the standpoint of volume and profit in an entirely new and different line. For instance, one of the items which we are just starting, and which we expect to develop to a considerably larger degree, is prestressed concrete products of various types. We feel that there is a great future for the new field, prestressed concrete, and we hope to get into those fields where the possibilities of volume are good. We are also going into the production of various units that have more attractive faces for use in building construction. We feel that the concrete products market, particularly regarding concrete masonry units, needs items like Split Rock and similar processes to give more competition to the clay products industry, and to produce better looking buildings. We produce Split Rock and are going into Mingotile and Krete Koater. Since the heyday of war-type construction we feel that our industry must meet the demand for better appearing material.

"If, and when, volume drops off, we are prepared through our type facilities, as well as our cost system to reduce our production and still maintain a profitable margin.

"I wish I knew the answer to this question. If we knew the principal handicaps to doing business in 1954, we would certainly be in a position to analyze them and learn some method of overcoming the handicaps. Of course, if volume drops, I imagine the biggest handicap will be in the ability to sell against our competition. This condition will also possibly create some price cutting; therefore, I suppose that greater sales effort, and possibly trouble from meeting cut prices, will be the items which we will have to watch the closest.

"We feel that our concrete products industry as a whole must develop not only better looking materials

for facing units for building, but also must develop a better quality product. I believe that as time goes on we will have to produce and sell a stabilized concrete masonry unit which will eliminate any possibility of shrinkage of the units themselves. Along with that, we will have to sell our architects, contractors and individuals on a great many of the details necessary in order to build with concrete masonry and prevent cracking and some of the other objections which people find in concrete masonry. The use of some of the various types of reinforcing materials for joints, such as Dur-O-Wal, is certainly one of the items which must be pushed. The use of control joints is, of course, necessary in certain types of construction. The economy of construction with our various types of concrete units is certainly a big advantage in favor of our industry. A more concentrated effort in showing what we concrete producers have available is also necessary. We find that a great many people do not know the types of units we have, principally from an appearance standpoint."

Minnesota: "Improvement of plants and hauling equipment will lower our costs and improve our service.

"We feel that if the volume of business becomes less we will have to continue to improve or replace equipment. With a high volume of business we have not had the time to do as much improvement to plants as we should.

"Volume of 1953 compared to 1952 was about 8 percent higher. Prices were good.

"We are not adding products. There are a lot of new markets which we have not been able to follow up because of our high volume at this time."

South Dakota: "There is more opportunity in the uses of concrete products and concrete construction in general. As we move away from war into the ways of peace as we did during the Coolidge administration and the noose around our neck is gradually released it will then be possible to move toward higher levels of prosperity than we have ever known in the past.

"The handicaps of the past are gradually being removed. Controls slow up production. The handicap of excessive taxation destroys initiative. It is the people that make prosperity and not the administration. The administration in power makes prosperity possible, but the people accomplish it. Prosperity is a result of an interchange of goods and we will have the more of it when we have price parity on a low price level. Service one to the other is the cause. Excessive credits and inflation will destroy it.

"The handicaps are being removed. We are at the bottom rung of the ladder and as we go forward prosperity will increase and we shall learn how to distribute the benefits of machine-

made wealth more equitably to a larger segment of the population."

Ohio: "We are increasing our plant efficiency in order to keep down our manufacturing costs. We are increasing our sales efforts. We have recently added three lightweight aggregates for block. We have experimented with machine-produced roof and floor slabs and hope to get into production in the near future."

"We are prepared to continue normal expenditures for additional facilities and replacements."

"Volume of business and prices did hold up in 1953 as compared to 1952. We have not yet compiled the data in regard to distribution according to use for highways, house building, industrial building, commercial, etc. We do not expect a marked change in volume for each classification in our territory in 1954 and where such changes may occur we anticipate that where one classification may drop off another may increase and the total volume should remain substantially what it was in 1953."

"The lightweight aggregates referred to above are Amlite, Beslite and Kenlite. We are not expecting to develop new markets to any great extent except that we expect to increase our sales of concrete masonry units for finished wall construction, particularly for exteriors."

"Our principal handicaps will be additional competitors, increased productive capacity of present competition in a market which cannot absorb this capacity, resultant decrease in prices, possible cement shortages, some decrease in the overall construction picture and increases in the cost of doing business in general. The most

important handicap, however, is the increase of frame pre-fab and dry-wall construction and frame and brick veneer in the residential field and our inability to compete with these types of construction on a cost basis."

Concrete Pipe—Missouri: "We intend to increase our products and improve on the quality of those products."

"We intend not only to continue normal expenditures for replacements but to increase our expenditures for additional manufacture of new products and betterment of the old products."

"Business was fairly good in 1953. The distribution was approximately 60 percent for highways, 5 percent for home building, 20 percent for industrial building and 15 percent for commercial. We anticipate a marked change in volume for these classifications in 1954 due to anticipated changes in sales technique and additional products."

"We are preparing to introduce new products and develop new markets. We are anticipating adding building block (concrete and lightweight), various block machine specialties, concrete specialties such as prestressed beams, lintels, roof slabs, etc., in both concrete and lightweight materials, and in time the addition of metal pipe and drainage products as leaders and fill-ins."

"Principal handicap is letting down of construction, especially in the building line. There is going to be a lot of shifting, changes, stalemates, etc., in the next year or two until the construction industry weeds out a great many beginner contractors. It is this group that hasn't sufficient experience to put their bids in the safety bracket and even though they do or don't get a job they run it down to where it isn't profitable."

From the foregoing it is apparent that the concrete masonry industry is entering a "shakedown" year when large volume of sales can only be sustained by much more aggressive promotion and merchandising. The year 1954 will be one in which selling will begin to meet resistance, presenting the most ideal time to push for sales and the improvement of competitive position. This is really an opportunity for the concrete masonry industry to establish its products in competition with other materials. We discuss later herein a program of promotion on which the National Concrete Masonry Association is embarking that will go a long way to intrinsically products of the industry provided that producers will actively support it and each will continue to pay its very small share to guarantee its continuity and growth."

Business leaders in all fields of endeavor are budgeting for extra sales expenditures and advertising in order to stimulate sales. They know that the economy is sound and believe that hard-hitting advertising, sales promotion and creative selling are the an-



Competitive all-ceramic block demonstrated by John Neff, assistant manager of Ceramics and Minerals Research department at Armour Research Foundation, Illinois Institute of Technology. The 22-lb. block is suspended by a 10-penny nail

REACH THE BUILDER
IN THE
BUSINESS SUIT MANAGE & HOME
THE MERCHANT BUILDER WHO PUTS UP
78%
OF ALL PROFESSIONALLY
BUILT HOMES IN THE NATION
THROUGH

CONTRACTOR-BUILDER PUBLICATIONS

Illustrations of various construction-related publications and materials, including a book titled "Masonry Building" and a magazine titled "Concrete".

DIRECT MAIL and FOLLOW-UP TOOLS

Sales Letters

(1) SAMPLE "STYLE" LETTERS YOU CAN REAPY AND (2) ILLUSTRATED SALES LETTERS SHOWN AT COST ON YOUR LETTERHEAD

Reply Cards

Follow-up cards

Folder on

HOW TO GET THE MOST FROM INQUIRIES AND DIRECT MAIL LEADS

Advertising media will be used to reach the builder, contractors, school administrators and supervisors, and direct mail and follow-up material will be made available to concrete products manufacturers

swers to sustaining high business volume. The key issue was expressed recently by chairman Melvin H. Baker of the National Gypsum Co. when he said the problem is "How to Induce More Buying." In his own company, which principally manufactures building materials, a survey disclosed that only 15 percent of the entire sales force had had any experience in competitive selling. We'd dare say that less than that percentage of concrete masonry producers now in operation have had to face up to really competitive markets. Many must be taught to sell for the first time or possibly succumb to the pressure of competition. Price-cutting is the first step to failure and it adds nothing to total sales volume for concrete masonry. It only serves to open the door to deterioration of quality and the rise of competitive materials. The answer lies entirely in the building of sales potential.

The concrete products industry is particularly vulnerable. If the quality

of its products be maintained to consistent high standards, the industry is in enviable position because concrete masonry has a long record of proved top performance to its credit. However, there are many relatively new companies in the business, as yet uninitiated in competitive selling, and which have yet to learn that their livelihood and very existence depends upon putting out a good product.

Since 1940, the industry has more than tripled its production. It now has reached a high level of 1.85 billion 8-in. equivalent units annually valued at approximately \$380 million. It has been since 1940 that concrete block came out of the "basement" classification and assumed status as a high-grade structural material. The industry is acknowledged to have been one of the fastest growing of all industries since 1940.

Most of the credit for its almost fantastic rise is due to the National Concrete Masonry Association which led the way to the use of concrete masonry for high-class construction and thereby greatly enlarged market potential. However, there have been other circumstances that have contributed to rapid growth and, in some cases, that does not mean acceptance.

We have just come through a prolonged seller's market when there was great demand for all types of building materials that couldn't always be satisfied. During the war periods of steel allocation and other restrictions, concrete masonry had the advantage of being more readily available than other competitive materials. Lumber prices were also fantastically high. These circumstances encouraged many to enter the business and some haven't yet had to ask anyone to buy anything.

Many an individual has entered the industry without previous experience and, due to such circumstances or favorably located government projects, soon had a high capacity block machine, or two, to make him a large volume producer overnight.

As a result of the progress of the industry at large, through its national association, in opening wide areas for utilization of concrete masonry and a combination of favorable circumstances, productive capacity is now enormous and there are many plants with high capital investment in modern equipment, some of them in relatively small population centers, which must be kept busy. Too many companies have profited, without contributing, from the efforts of others.

A great many companies think they have been selling their products during the past decade when they merely have been taking orders or haven't done much more than call attention that they have a product available. The area of creative effort in selling hasn't hardly been explored and it will have to be pioneered in many geographical areas and in the various fields of use. A separate article in this issue of **ROCK PRODUCTS**, "The Basalt Rock Co. Story," is illustrative of the kind of selling that will be required. This company, under the leadership of president A. G. Streblow, who was president of N.C.M.A. in 1952, and who is one of the strongest advocates of the N.C.M.A. promotional program which we discuss later herein, is the best example we know of to prove what can be done with creative selling. Mr. Streblow's company entered virgin territory—a lumber area—and built up an acceptance for concrete masonry that is almost unprecedented, through skillful and hard-hitting sales promotion and by strict adherence to quality standards. We think that there are many producers who will have to do similar type of creative selling because they will ultimately find themselves not to be as established as they think they are, when competition from other materials enters the picture.

Competition Spending Money for Sales Promotion

The concrete masonry industry has become a front runner in the build-

ing material field and, as such, is the object of challenge. It has taken business from the clay products and lumber industries, and those industries will seek to recover lost markets in proportion to the need for it in holding their volume of business. There are also other industries preparing to set out in competition with concrete masonry.

The clay products industry has suffered badly in competition with the concrete masonry industry and is setting out on a program to do something about it. With an annual volume of business in the 250 to 300 million dollar range, members of the industry are being asked to invest 2 percent of gross sales for a program to extend the uses of clay products. This fund would be divided equally four ways—in support of the Clay Products Institute, for the research foundation, to maintain the regional offices, and for local promotion. The SCR large-size clay unit has been developed with an eye to challenging the position of concrete masonry units.

It has been reported that the plasterers are raising \$500,000 a year to promote more plastering in competition with exposed masonry walls. Furthermore, the lumber industry is now investigating reasons for the drop-off of sales in the building industry which could well have a severe impact on the concrete masonry industry. Lumber prices have been dropping in recent years. About 80 percent of housing is still frame construction, which is important for the lumber industry to maintain and which constitutes the greatest opportunity for expansion of concrete masonry sales. Currently, concrete masonry is competitive in price with frame construction.

There are other signs of increasing and even new competition that must be met. The use of porcelainized steel and aluminum in place of masonry for siding in larger buildings is relatively new but has already gone beyond the idea stage for skyscrapers and hotels. Several new skyscrapers

Radio and television advertising, truck decals and job-site signs are part of the sales promotion program. Advertising in architects and engineering publications will be emphasized



Literature for the practical builder, special uses for block, and trade publication advertising are other tools for concentrated sales promotion

in Pittsburgh are examples. One aluminum producer has said that 20 percent of his company's production is now going to architectural use and that the eventual goal is 50 percent. This company claims that the use of aluminum can beat masonry in price through elimination of the laying of masonry units. The growing shortage of bricklayers is a factor that is opening the doors to this new competition. Speed of erection and space are favorable factors stressed but the question is whether such construction will have the durability of concrete and brick construction.

U. S. Steel Corp. has set up U. S. Steel Homes with a plant in Harrisburg, Penn., to manufacture steel homes. Large companies like Johns-Manville, for example, are setting out on "do it yourself" types of promotion programs aimed at the home repair and enlargement market. They feel that there are great numbers of old homes in need of replacement or modernization, and that many hurriedly built, shoddy and small homes, even of recent date, now require renovation, new rooms, new roofs, etc.

Only last month, Armour Research Foundation announced development of a new lightweight, all-ceramic building block which is claimed to possess many advantages over concrete block. It was perfected by the Foundation's Ceramics and Minerals Research department in a project sponsored by the Arabian-American Oil Co., New York City.

The new block contains no portland cement, is composed largely (90 percent) of bloated clay bonded with fused clay, and is a three-cavity 8- x 8- x 16-in. unit. It weighs only 22 lb., has high insulation value with a conductivity of 0.3 B.t.u. or less per sq. ft. of wall area, will not chip and is made for a compressive strength of 1000 p.s.i. With a 12-16 percent porosity, it is claimed that walls of these units will "breathe" and not sweat. The unit may be produced in a variety of colors, is nailable and readily cut or trimmed. In its manufacture, the clay is converted into a bloated aggregate by heating on a fixed grate, a traveling grate, or in a rotary kiln. The aggregate is then crushed and

graded and the various sizes recombined to produce the desired working properties and finished product characteristics. Raw clay (10-30 percent) is then added to the graded aggregate, water is added, and the batch is mixed in a concrete mixer. The block are molded by conventional concrete block machines and are fired in a tunnel kiln.

Work in developing the new unit was begun in 1952, to develop an economical unit for use in Arabia but the sponsors believe the unit has excellent possibilities for residential and commercial building in the United States.

Other challenges are coming from the many tilt-up and lift-slab forms of construction constantly being developed.

The foregoing are mentioned to emphasize that concrete masonry manufacturers have much more at stake than competition with each other. The idea of concrete masonry construction has got to be entrenched by every possible means.

N.C.M.A. Program

The National Concrete Masonry Association has come up with a most effective approach to the problem in the form of an enlarged program for promotion which has as its stated objectives: (1) "to overcome objections to concrete masonry, (2) to build widespread acceptance of concrete masonry among contractors, architects, lending agencies and the general public, (3) to create a more favorable climate for effective promotion at the local level, (4) to improve mutually the relations between the concrete masonry industry and other industries, and (5) to boost gradually but surely concrete masonry's share of sales potential for building materials." It is aimed to tell the story of concrete masonry at least cost to the principal people who influence the purchase of building materials and consists to a great extent of an intensive program of advertising and publicity directed to all groups who influence the purchase of building materials.

The program is very comprehensive, so we illustrate, in the interests

of space, some phases of the program herein with reproductions from posters which were prepared for presentation to member companies. We mention some of the entirely new activities herein. There will be trade publication advertising to reach architects, engineers, large volume builders, contractors and masons. Special advertising in architectural and engineering publications like "House and Home Magazine" will reach the architects, engineers and project builders who account for 94 percent of all construction. Advertising is to be carried in contractor and builder publications to reach the light construction market.

A booklet "Facts About Concrete Masonry for the Architect and Engineer" will be compiled, as well as special editions for the practical builder and the farm market. There will be a "Master Mason Bulletin" containing practical tricks of the trade for masons, digests of published articles, etc., for distribution to masons. Literature to promote special uses of block around the home and farm such as garden walls, garages, barns, patios, etc., is to be prepared for distribution.

Among other new promotion aids will be "how to do it" sheets of instructional character covering the building of outdoor fireplaces and other specialties; general newspaper mats for use in local promotion; mats for use in farm papers; radio and television spots; direct-mail and follow-up tools including sales letters, cards for advertising to mass transportation riders in any communities; display cards including banners for booth exhibits, counter cards and idea folders; job-site signs, truck decals, billboards and signboards; reprints and preprints of national advertisements and publicity stories; and an educational color and sound motion picture for presentation to local groups. The use of all the foregoing will be made available to members of N.C.M.A. at cost, giving each the benefit of savings through mass production and purchasing.

The association's public relations and publicity program is to be enlarged and its present promotional

(Continued on page 238)

Stress Quality and More Diversification at Southeastern Meeting

HISTORIC CHARLESTON, S.C., was host to the tenth annual meeting of the Southeastern Concrete Masonry Association held at the Ft. Sumter Hotel, on November 16, 17 and 18.

There was a total of 272 registered of which 67 were ladies. Some 26 states and the District of Columbia were represented with two representatives from Washington and two from Arizona.

The meeting was well attended by representatives of machinery manufacturers who serve the concrete masonry field, nine cement companies, and the Portland Cement Association. Producers of lightweight aggregates, slag, and hard aggregates were also present, including representatives of manufacturers of silica flour.

The meeting Monday morning was called to order by President George W. Katterjohn following the invocation by Rev. Marshall E. Travers and a welcome from the mayor of Charleston.

The first speaker, R. B. Whitney, Southeastern Industrial Engineering Co., Atlanta, Ga., was introduced by Leon K. Camp, Columbus, Ga. The speaker reviewed the wage and hour law. Following Mr. Whitney, Sam Paturzo, Baltimore, Md., president of the National Concrete Masonry Association extended a congratulatory message to his hearers, and gave some good advice on concrete masonry subjects for the immediate future. Mr. Paturzo said that during the past few years concrete masonry producers had an easy and a high sales volume, and this could lead them to become too independent. Too high a production rate was sometimes made at a sacrifice of quality, and with warnings of a recession on the horizon, the speaker felt that a change in attitude was almost mandatory. He urged his hearers to study all phases of their business, to make more types of units so less cutting on the job would be necessary and give more service to the users. Selling in the future was going to be a must, and a sales program should be mapped out and followed. Mr. Paturzo urged that all who were not members of N.C.M.A. should join the national association and work for the good of all.

Theodore Leba, manager, Washington, D.C. office of N.C.M.A. spoke about the functions of his office in the national capital, pointing out that in Washington, D.C. there were some 350 offices of industrial and trade associations many of which were important to the concrete masonry producer. In the army, navy, air force and other government branches were engineers and designers that take an important part in preparing specifica-

Southeastern Concrete Masonry Association annual meeting at Charleston, S. C., emphasizes the importance of more active selling program to keep in step with competition

tions. His office not only offered technical assistance to such groups as these, but also to producers who have problems to discuss with government officers. His office, he pointed out, does not indulge in any lobbying activities.

John L. Strandberg, Kansas City, Mo., a past president of N.C.M.A. showed the group a part of his collection of colored still pictures that he collected during a recent 15,000-mile trip through western Europe.

The day's business sessions closed with a luncheon address by John Temple Graves, commentator and syndicated columnist of Birmingham, Ala. Mr. Graves reviewed the recent history of the South with emphasis on the increase in the living standards of its people, and of its political importance. The speaker pointed out that in the South, the living standard had increased from 47 to 64 percent in the past few years, and that with continued increase in these standards there would be increases in earning power and a wider use of consumer goods.

High Pressure Curing

The second day's meeting opened with R. L. Kerr, Charleston, S.C. presiding. The first speaker was Dale Cobb, West Monroe, La., president of the Autoclave Building Products Association who spoke on the subject of high pressure steam curing. The

speaker reviewed the history of high pressure steam curing, mentioning that it started in Europe in 1880 and was first used for the production of sand-lime brick. The brick were made of a high calcium lime, using about 7 percent by weight of lime and a clean, active silica sand. Enough water was added to form the brick by pressure molds, and the units were cured for 8 to 12 hr. at 125 p.s.i. steam pressure. The process was introduced into the United States in 1901, Mr. Cobb pointed out. In the 20's several plants in the United States were not only making sand-lime brick by high pressure steam curing, but some were investigating its use to cure concrete masonry units. Mr. Cobb pointed out that in 1930 the Portland Cement Association's technicians investigated high pressure steam curing, hereinafter referred to as H.P.S.C. In 1931 the same group instigated shrinkage studies of H.P.S.C., and in 1934 a second report was made on the subject by the same investigators. The years 1935 and 1936 saw papers by Carl A. Menzel of the P.C.A. laboratory staff on this curing system, and in 1944 the American Concrete Institute reported on the process.

Mr. Cobb said that a concrete masonry unit cured by H.P.S.C. was ready for use in 24 hr. that the block was drier than those cured by conventional methods and was lighter in color. He said blocks made by H.P.S.C. had a clear ring when struck with a hammer, and the strengths in 24 hr. were equal to, or greater than block cured for 28 days by older methods. He said the character of the block cured by H.P.S.C. was permanent; no "pops" or soiling of the block, and the units resisted sulphate action better than conventionally cured block. The speaker pointed out that when silica flour is added to the mix in the concrete block plant and the units were cured by H.P.S.C., no leakage or efflorescence occurred and that greater strengths were obtained with a saving in portland cement. Mr. Cobb emphasized the point that shrinkage due to moisture, or to temperature, or to both was at least 50 percent less in block cured by H.P.S.C. as compared to conventional steam or moist curing. He said that studies showed that a different chemical reaction took place in H.P.S.C. block. One was the reaction between the calcium hydroxide liberated when portland cement sets and the silica flour in the mix, forming calcium silicate—nature's own cementing material. In the curing there was a change from an amorphous to more crystalline forms and that "hydro-garnetization" took place. These forms were all very



Mr. and Mrs. Geo. W. Katterjohn

stable, and the reactions were complete.

The speaker pointed out that the actual measurement of expansion and contraction of a concrete masonry unit due to water (or temperature changes) was the only true criteria and to get these movements below .03 percent one had to use H.P.S.C. as the only means of getting it. He recommended pressures of 125 p.s.i. at 350 deg. F. with a saturated steam atmosphere in the kilns. He pointed out that all portland cement laboratories use a laboratory autoclave in their daily testing of portland cement pastes so as to get complete hydrations quickly. Mr. Cobb said he had been using H.P.S.C. 1½ years and had cured over 6,000,000 units. Under his old curing system, he had four to six complaints per week but none since he adopted H.P.S.C. He said one large producer in the Middle West was producing H.P.S.C. block at a cheaper over-all cost than by older methods.

Mr. Cobb described the kilns as being horizontal steel cylinders that ranged from 78-in. up to 10-ft. diameter in some of the later installations. The length varied from 46 to 100 ft. Doors can be at one or both ends. He mentioned 12- to 16-hr. curing in addition to the 8 hr. in the pressure vessel. As the cylinders are round, racks should be designed to use up as much of the space as possible. He mentioned the use of racks holding 96 units in 78-in. diameter kilns. The racks were 42 in. deep. He described some of the doors as being quick-closing, using hydraulic closing devices, etc. Rails in the kiln are provided so that racks can be placed in the units by conventional lift trucks. A cable on the floor is sometimes used, he said, so that racks can be pulled out of the kiln, thereby making it unnecessary for any workman to go in the warm kiln. Mr. Cobb described the operation of the kilns saying that steam is first slowly admitted to the kiln with a vent open. After curing for 8 hours, the steam in the kiln can be passed in to a filled kiln so as to help bring it up to temperature.

Contractor-Architect Views

Wm. A. Carlisle, president, South Carolina chapter, American Institute of Architects, Columbia, S.C., the next speaker, gave his impressions of concrete masonry and what the industry needs. The speaker liked exposed walls and asked why stucco walls. He pointed out that stucco walls also crack. He believed in more standardization for block for similar purposes so that block from several sources could be used without deviating from the original designs, pointing out that one school had to be built 2 in. higher than designed because of this factor. He said the quality of the block must be improved and that a coordinated program for teaching mechanics how to properly lay and handle block was essential and that masons for the most part are not adequately trained.



Directors of the association, left to right: C. I. Needham, Bradenton, Fla.; H. A. McGee, Jr., Orangeburg, S.C.; E. M. Barnes, Knoxville, Tenn.; Frank Williamson, Winter Park, Fla.; Geo. W. Katterjohn, Paducah, Ky.; William Ireland, Atlanta, Ga.; Leon K. Camp, Columbus, Ga.; and Henry Pommer, Memphis, Tenn.



Left to right: E. W. Dienhart, executive secretary, N.C.M.A.; Sam Paturzo, president of N.C.M.A.; Ted Lebo, N.C.M.A. Washington, D.C. office; M. E. Rinker, president-elect of N.C.M.A., and Geo. W. Katterjohn, president of Southeastern Concrete Masonry Association

Irwin Kahn, M. B. Kahn Construction Co., Columbia, S.C., and director, Carolina's branch of A.G.C. gave a contractor's views on block. He said that in rural areas concrete blocks were often sub-grade as to quality, but they often had to use them because of economics. These smaller operators also do not make or carry "special" shapes, and there was a general lack of uniformity with emphasis on color differences in the masonry units. He advocated the use of pallets for big jobs as wheelbarrows were no good for the larger projects. He stressed the need for the concrete block manufacturer to inspect the construction work better, and more often.

He advised that new types of surfaces for concrete block be explored. Mr. Kahn said that he did a lot of tilt-up work on the job and felt that the field of pre-stressed concrete panels for tilt-up work could be investigated. He advised more research in connection with the use of lightweight aggregates, mentioning vermiculite and perlite as possibilities. He said the plaster association was spending half a million dollars annually on promoting the use of plastered walls, and that the concrete products manufacturer should do something to combat this competition.



Part of the convention group who took the harbor boat trip



Mr. and Mrs. Thomas E. Swift



Mr. and Mrs. J. D. Ross, Baltimore, Md.



Left to right: Jack Freedman, Medford, Mass.; Col Campbell, and Louis Freedman, Medford, Mass.



Mr. and Mrs. F. J. Jacks, Clarksville, Miss.

Advertising-Promotion

The closing speaker for the day's session was William P. Markert, N.C.M.A. director of promotion, Chicago, Ill. Mr. Markert mentioned the promotional work that the clay group was doing, and stressed the need by the concrete block manufacturer for a broad program of merchandising. Funds are required to adequately carry out an advertising program that would reach those who influenced the buying of concrete masonry products. He also reviewed the promotional activities of his department. Colored layouts of proposed ads designed for trade publications as well as mass media were displayed. He said that factual data is available for architects and engineers and mentioned, "How to do it sheets," for the self builder, pointing out that the farmer does about 80 percent of his own concrete work. Advertising mats were available for local farm papers and free copies of radio programs for spot use were available. TV spots were available at the cost of producing them. His office can supply samples of sales letters, display cards for buses, banners for booth displays, and job site signs could be furnished. Such items as truck decals, bill or signboard signs were obtained at low cost to the block manufacturer. His office also had reprints and preprints of stories for local distribution.

Wm. R. Ireland, Atlanta, Ga., introduced Jas. C. Garrison, Greenville Concrete Co., Greenville, S.C., at the final session, who reviewed his trip to Europe where he visited concrete masonry plants in England, France, Germany, Italy, etc. He said that in England building was restricted by the government and that concrete fence posts were important items there. He briefly described the methods used in casting reinforced concrete railroad ties or "sleepers." He mentioned one plant in France that at one time employed some 3000 men. Ten assembly lines were used. During the war the Germans operated the plant and because of sloppy workmanship performed by the Germans some of the beams cast were not of the highest quality. In Germany rubble was being used for reconstruction work. In Italy spun poles were being made as well as prestressed beams. He said Italy was very prosperous when compared to England and the other European countries visited.

E. W. Dienhart, executive secretary of N.C.M.A., gave a short review of the association's activities as well as the services rendered to the regional groups. He stressed the fact that the directors of N.C.M.A. drew no salary and paid all their own expenses when attending the two annual board of directors meetings.

Following the executive secretary's review, William H. Gove, director of sales development, Minnesota Mining & Mfg. Co., St. Paul, Minn., was introduced by Frank Williamson, Win-



Mr. and Mrs. C. I. Needham, Bradenton, Fla.



Richard Murphy, Mobile, Ala., left, and Dick Shively, Birmingham



Fred W. Reinhold, Buffalo, N.Y., and Floyd Wheat, Millville, N. J.



Mr. and Mrs. Floyd Edgar, Daytona Beach, Fla.



Edmund Shaw, Millville, N. J., left, and H. J. Stockard, Jr., executive secretary of North Carolina Concrete Masonry Association

ter Park, Fla. Mr. Gove gave a very forceful and humorous inspirational sales talk that was designed to help a salesman get the order. "Be yourself" and "Be a good listener" were important bits of advice. Foot work was also important.

M. E. Rinker, president-elect of the National Concrete Masonry Association, reviewed the three-day program at Charleston and spoke briefly of N.C.M.A. financing.

Suggested meeting places for next year include Louisville, Ky., St. Petersburg, Fla., and Albany, Ga. H. J. Stockard, Jr., executive secretary, North Carolina Concrete Masonry Association told about a proposed meeting his group might hold on a 21,000-ton Swedish boat while cruising to Bermuda. It was proposed to leave October 23 and return October 28. The fare, including berth and meals, would be \$100 minimum for the round trip with an average fare of \$135. There would be one full day at Bermuda.

George W. Katterjohn was re-elected president of the Southeastern Concrete Masonry Association for the next year. New vice-presidents elected were: Frank Williamson, Winter Park, Fla.; Leon K. Camp, Columbus, Ga.; and H. A. McGee, Orangeburg,



Left to right: H. A. McGee, Jr., Mrs. E. R. Walter, Mrs. H. A. McGee, Mr. E. R. Walter, Orangeburg, S. C.; Mrs. Bert Hartzog and Mr. Bert Hartzog

S.C. New members elected to the board were: Sam M. Bailey, Jackson, Miss.; H. Pommer, and R. H. Radcliff, Mobile, Ala.

A cocktail party sponsored by the concrete masonry producers of South Carolina and the annual banquet were held at the Francis Marion Hotel in the same city. The program included a bus trip around and through historic Charleston and vicinity.

Sulfide Control

THE AMERICAN CONCRETE PIPE ASSOCIATION recently announced the availability of the technical memorandum, "Progress Report on Sulfide Control Research," written by Richard Pomeroy and Fred D. Bowlus, and reprinted by the association, through the courtesy of *Sewage Works Journal*. Topics covered in this 46-page report include: Principles of Sulfide Generation; Hydrogen Sulfide in Sewer Atmospheres; and Sulfide Control Procedures. Several charts and tables are also included as well as a complete bibliography.

Ball Penetration Vs. Slump Cone

A RECENT ISSUE of *Highway Research Abstracts* contained the summary of an article, entitled "Is the Slump Cone on Its Way Out?" The article, written by E. L. Howard, Jr., Pacific Coast Aggregates, Inc., and J.

W. Kelly, University of California, tells of tests conducted by Pacific Coast Aggregates for the purpose of comparing the slump cone and the Kelly ball as tools for concrete consistency control. According to the report, the Kelly ball was found so easy to handle and the results so satisfactory that the company has stopped use of the slump cone entirely. Use of the ball penetration test method reportedly gives two distinct advantages: First, the speed of test permits faster adjustment of mixes; and second, the concrete is more uniform because the Kelly ball is sensitive to changes in consistency not always detected by the slump test. The Kelly ball was also used successfully in measuring mortar-aggregate separation occurring from mixer to forms.

Concrete Products Plant

MOULTRIE CONCRETE PRODUCTS CO., has begun operations at its plant in Moultrie, Ga. The company produces ready-mixed concrete, concrete block, pre-cast septic tanks, door steps, picnic tables, lawn benches, watering troughs and various other concrete products. The plant facilities include 210 ft. of conveyor belts, a 150-ton hopper, storage facilities for 600 bbl. of cement, and a fleet of transit-mixer trucks. The company also has a department headed by Walter Daughtry, which handles building supply equipment. George J. Sumner of Tifton, Ga., is the owner, John McCranie is manager of the company, and Mrs. McCranie is office manager.

Block Plant

STUVER BROTHERS has begun operation of its new concrete block plant at Barberton, Ohio, near Akron. In addition to conventional concrete block, the company is also producing "Stuver Stone," a new lightweight block. Cost of the new plant was approximately \$100,000. Officers of the company include J. C. Stuver, president; J. W. Stuver, vice-president; Donald A. Stuver, secretary; K. R. Stuver, treasurer; and James Thomas, plant superintendent.



Left to right: "Mikki" Hayward, Mrs. and Mr. Ashton Hayward, Pensacola, Fla., Cabell Ford, Richmond, Va.; Mrs. Walter B. Lenhart; Clyde Lamkin, Warwick, Va.

New Tests and Manufacturing Technique

Reviewed by Southeastern Pipe Producers

Southeastern Concrete Pipe Association meeting at Williamsburg, Va., hears government speaker describe atomic defense program and blast effect on concrete structures

PPIPE MANUFACTURERS of the southeastern states held their sixth annual convention at the Williamsburg Lodge, Williamsburg, Va., November 12 and 13. This group includes manufacturers in Alabama, Florida, Georgia, Kentucky, Louisiana, North Carolina, South Carolina, Tennessee and Virginia. The Southeastern Concrete Pipe Association is very active, and is affiliated with the American Concrete Pipe Association.

New Officers

The following officers were elected: President, John F. Lowe, Jr., Associated Concrete Pipe Co., Miami, Fla.; vice-president, R. L. Kerr, Tidewater Concrete Pipe & Products Co., Charleston, S.C.; treasurer, Albert Gary, Augusta, Ga.; secretary, Joseph I. Torbert, Camp Concrete Products Co., Columbus, Ga.

The first day was devoted to registration and meetings of the Board of Directors. During the interim the guests had an opportunity to explore Colonial Williamsburg, the capital of Virginia during pre-revolutionary days.

Harry W. Easterly, Jr., president of the Southeastern Concrete Pipe Association, presided at the first open session. After reports by the president, secretary and treasurer, a test program, sponsored by the Corps of Engineers, U.S. Army at Hunter Air Base, Atlanta, Ga., was described. The essentials of the test involve the laying of several hundred feet of 54-in. concrete pipe. Eighty-three different types of joints are to be tested,



John F. Lowe, Jr., Associated Concrete Pipe Co., Miami, Fla., left, president of the association, shaking hands with Harry W. Easterly, Jr., Concrete Pipe and Products Co., Richmond, Va., past president

with flexible joints the main interest of the engineers. Silt infiltration, leakage and other qualities related to this type of construction are to be studied. Details as to laying the pipe, inspection during the laying, etc., were briefly discussed and members of the group are watching the program with interest.

Atomic Defense Structures

Benjamin C. Taylor, Chief, Technical Operations, Federal Civil Defense Administration, Washington, D.C., was the first speaker. Mr. Taylor prefaced his talk by showing a moving picture that was built around his theme of "Operation Doorstep." The main purpose of Mr. Taylor's talk was to awaken the hearers to the importance of civil defense. He pointed out that England was able to cope with heavy bombing because as early as 1935 civil defense was organized. When World War II was well into the bombing phases, England had a volunteer fire department that alone comprised over five million men and women. The speaker pointed out that Germany did not have a civil defense set-up—they were so used to victory that any disaster to their nation was unthinkable, and, because they did not have a civil defense plan they were unable to cope with the mass migrations, the feeding of the homeless, fire protection—and lost the war. Mr. Taylor said we are in a similar situation; i.e., we were used to victory, were therefore indifferent and most had the feeling that "It could not happen to us." Mr. Taylor had much to say about the use of concrete pipe

and other forms of concrete for atomic or conventional bomb protection. The first film was called "Disaster on Main Street" and showed blast and fire damage inflicted on England, Germany, and Japan from World War II bombings. The second was entitled "The Tale of Two Cities" and depicted the atomic bomb destruction on Hiroshima and Nagasaki. The third was "Operation Doorstep" and showed some of the unclassified portions of tests conducted at the Nevada Proving Ground held during the spring of this year (1953). Mr. Taylor had personally witnessed nine atomic bomb blast tests.

From these tests some technical data is available as to how to possibly survive an atomic bomb attack. The speaker pointed out that Russia has a large submarine force that could deliver an atomic bomb, that radar can be jammed, or low flying airplanes get under the radar line of vision and come in undetected. No city is immune as distance barriers are not important. Mr. Taylor pointed out that the median lethal dose of radiation for a human being; that is the amount of radiation which will cause approximately 50 percent of those affected to die, is considered to be in the neighborhood of 400 roentgens total body irradiation. The amount of radiation penetrating into a shelter area can be considered as reduced by 50 percent for each 4½ in. of concrete between the bomb and the human being, or 1½ to 2 times that thickness of earth. For example, should prompt gamma radiation at the exterior of a concrete structure be in the order of 1000 roentgens, it



Mr. and Mrs. Albert Gary, Augusta, Ga. Mr. Gary is the new treasurer of the Southeastern association



Mr. and Mrs. Joseph I. Torbert, Columbus, Ga. Mr. Torbert is the new secretary of the Southeastern association

would require approximately 16 in. of concrete to reduce this radiation to below 100 roentgens, which dosage would result in few if any deaths. Two to 2½ ft. of earth would provide approximately the same degree of safety. Nuclear radiation does not, of course, have any practical effect on the structure itself.

On the question of blast effect, he said: "A multistory masonry building provides a good illustration of the difference in the blast effects of high explosive and atomic bombs. A high explosive bomb bursting near such a building may simply punch a hole through the masonry wall at its weakest point, whereas the atomic bomb, exerting no higher pressure in p.s.i. may cause a total collapse of the building, since this pressure is maintained against the wall for a longer period of time permitting acceleration of the structure to the point of failure."

Mr. Taylor said there is little data available on the subject of vulnerability of underground pipe lines to ground shock or pressure from an air burst of an atomic bomb, other than that resulting from the studies of the Hiroshima and Nagasaki explosions. In Hiroshima and Nagasaki all subsurface piping of the water supply system was cast iron pipe. There were no crushed mains as a result of the explosion and only eight leaks in the mains attributed to the attack.

During the test conducted by the Federal Civil Defense Administration at the Nevada Proving Grounds in the spring of 1953 a reinforced concrete pipe type of home shelter was tested. This shelter consisted of a reinforced concrete pipe 8 ft. long and 5 ft. 6 in. inside diameter, having a shell thickness of 4½ in. with 0.8 percent steel reinforcing. This design was intended to simulate a standard product of the concrete pipe industry. The back end of the pipe was sealed by a reinforced concrete plug. Access to the shelter was had by an open shaft type entrance which was not a part of the test. The front end of the pipe was closed with a door constructed of 2 x 4's spiked together. This shelter was tested at a point 1800 ft. from ground zero of a 15 kiloton



Left to right: Mr. and Mrs. L. D. Weaver, Thomaston, Ala.; Mr. and Mrs. J. C. Welch, Jackson, Miss.; Mr. and Mrs. A. T. Holloway, Gadsden, Ala.; and Mr. and Mrs. L. H. Shelley, Eufaula, Ala.

bomb exploded atop a 300-ft. steel tower. No damage was observed as a result of an examination of the interior of the pipe after the blast.

Managing Director's Address

Howard F. Peckworth, managing director, American Concrete Pipe Association, reviewed the "State of the Nation" insofar as it related to the pipe industry. He said that New England was off, Texas off, Middle States up, Northwest about the same as the Middle West, but there were warning sounds out that one must pay attention to. He felt that business would be good for the first quarter of next year but did not want to commit himself any further.

Much of Mr. Peckworth's talk related to new methods that he had encountered during his travels. The essence of these newer processes hinges on their ability to make as good, or better pipe than the more conventional techniques. Some of the pipe made by the newer processes were of excellent grade, but Mr. Peckworth pointed out that some processes in the early pioneering stages did not always make a good pipe.

The speaker called attention to the several mergers in the concrete products field pointing out that due to the present tax structures it may be advantageous for a healthy business to buy or merge with other producers.

Mr. Peckworth also dwelt on the so-called "Simplified Practice" as regards wire and wire mesh reinforcing. He traced the development of the simplified codes from the periods when



Ivy H. Smith, Jacksonville, Fla., left, president of the American Concrete Pipe Association, and Howard F. Peckworth, managing director of A.C.P.A.



Mr. and Mrs. W. C. Mapp, Hattiesburg, Miss.



Mr. and Mrs. C. R. Wilhelm, Atlanta, Ga.



Left to right: G. E. Whitten and Mrs. Gray, Gray Concrete Pipe Co., Thomasville, N.C., and Mr. and Mrs. R. B. Mountcastle, Roanoke Concrete Products Co., Roanoke, Va.



Left to right: O. H. Miller, Sr., O. H. Miller, Jr., of Memphis, Tenn., and Harry W. Easterly, Sr., Richmond, Va.

steel was scarce and the pipe manufacturer was glad to get anything to the period when steel was plentiful and the wire mesh salesmen leaned towards supplying most sizes. It was indicated that adhering to the simplified codes would benefit the pipe manufacturer and the subject should be reopened. The speaker also outlined the competitive picture as regards corrugated pipe vs. concrete pipe saying that the steel men were very active both in regional areas and in Wash-



Left to right: Mr. and Mrs. O. H. Miller, Jr., and E. F. Besselow, Memphis, Tenn.

ington, D.C. He felt that the competition with corrugated pipe would increase.

The speaker outlined some of the work of the American Concrete Pipe Association with emphasis on working with local, state, and/or regional associations. The speaker had much good to say for the regional associations. Austin, Texas, may have a regional office under the Chicago office, but will be paid for by local groups.



Mr. and Mrs. Robert C. Ray, Franklin, Va.

This project is still in the mill and not fully developed.

Mr. Peckworth told of the very important work that the Washington office was doing. Many specifications are written in government branches and the office aids in this work so that concrete pipe gets at least an even break with other types of pipe. He told how the Washington office ran down specific troubles and worked with the army and navy on problems of mutual interest. He said there should be no talk of abolishing that office, but on the contrary, to increase it.

By the use of the blackboard, Mr. Peckworth outlined some of the de-



Left to right: James McKee, N.C. Products Corp., Raleigh, N.C.; Louise Kussman and Stanley R. Navas, both of Concrete Pipe & Products Co., Richmond, Va.

signs of inlet structures and of the use of tie-bars for concrete culvert work. The use of tie-bars appears to have advantages. The speaker also advocated the use of such materials as silica flour and other pozzolanic materials. He pointed out that when concrete sets calcium hydroxide is liberated in the concrete. If silica is present in the form of a pozzolan, the silica can react with the lime forming calcium silicates. The end result is a more durable pipe. He pointed



Mr. and Mrs. I. R. Devenold, Alexandria, Va.

out that the use of these additives had no bad effects on the machines used in the industry. However, he pointed out that if a light type of pozzolan such as pumicite or fly ash was used in the centrifugal process there might be some difficulty due to segregation. He felt that such pipe would be more resistant to acids and hydrogen sulphide and would make a better looking pipe as well. The speaker said that the 1954 meeting of the American Concrete Pipe Asso-



Mr. and Mrs. Sikes, Panama City, Fla.

ciation would be held at the Fairmont Hotel, San Francisco, Calif., on February 25-26 and 27.

One of the highlights of the day's session was the showing of a sound-color moving picture film captioned, "Our Town's Decision." It was the first showing of the film that was sponsored by a group of producers in the Southeastern association. The film is an exceptional piece of sales promotional equipment designed for layman interest as well as for the technician. Copies of the film can be purchased, it was said, but not rented. The meeting officially ended that evening with a cocktail party and annual banquet followed by dancing.

Concrete from Sawdust

WALTER FRIBERG, engineer, University of Idaho, has announced a new development in the use of sawdust as a concrete aggregate. According to Mr. Friberg, the addition of diatomite to the sawdust-concrete mix will produce a lightweight concrete that is inexpensive, easy to work, won't shrink, is a good insulator, and is fire resistant. It was also stated that the sawdust concrete can be sawed, chiseled, drilled or nailed as wood. The recommended mixture is 7 parts of sawdust or wood shavings to 1½ parts of diatomite and 1 part portland cement, plus water.

The new concrete, although not recommended for purposes where high strength is needed, is said to be suitable where insulation or light weight is needed. It is said to be especially suitable as an under-floor insulation, using a 4-in. layer next to the ground, topped with 1 or 2 in. of conventional concrete, depending on the load. Mr. Friberg reports that it may also be used for walls, either poured in sectional forms or precast in solid blocks.

Ornamental Stone

DECLERK INDUSTRIES, Center Line, Mich., is producing an ornamental building stone called "Kragstone," made from a lightweight, glassy, lava material. The product is available in various colors, and is said to be especially adaptable to interior masonry work, facades, entrances and store fronts.

Advantages and Disadvantages of Non-Agitating Delivery Equipment

16. A producer views the ready-mixed concrete business . . .

THE DEVELOPMENT OF AIR ENTRAINMENT made possible the delivery in non-agitating equipment of quality, central mixed, air entrained concrete. This method of handling concrete has been widely used on large projects, where both hauls and plant operations were under close control. The practice has failed to take hold in the ready-mixed concrete industry. To permit the widespread use of this method, skeptical engineers had to be convinced, politics had to be played, specifications had to be changed, proper delivery equipment had to be developed, efficient operating practices had to be worked out and contractor customers had to be sold. Proponents of this method were inept; many untrained operators, using inadequate plant and delivery equipment, discredited the practice by delivering a poor quality product and opponents of non-agitating deliveries did "an efficient job." The potential economies of non-agitating deliveries failed to sufficiently impress producers who were doing quite well with their transit mix operations. People who said, "Introduction of non-agitating deliveries might have been more successful if conditions hadn't been so good," were probably right. At least, interest in non-agitating deliveries has certainly subsided among members of the ready-mixed concrete industry.

Operators who have central mixing plants should know the problems, advantages and disadvantages of non-agitating deliveries. Some day, when the sales volume falls off, informed consideration of this practice and the possibilities of "pick-up" sales may well be the difference between profit and loss.

Without spending a dime for new equipment, it is a relatively simple matter to determine whether non-agitating deliveries could be successful at your operation. The test can be made with your own trucking equipment. Load a truck mixer at a batching plant. Rotate the drum 100 revolutions. Take slump and air checks to be sure that the mixed concrete is within the limits of non-agitating hauling. Haul the concrete at least five miles without rotating the drum. At the delivery point, rotate the drum solely to discharge the concrete. If on several loads, concrete free of segregation is discharged from the unit, you know that, exercising effective plant controls, you can deliver quality

By JAS. A. NICHOLSON*

air entrained concrete in properly built non-agitating equipment.

The average central mixed producer made a failure of non-agitating deliveries because he failed to establish effective controls over aggregate selection (e.g., absence of fines in the 30-50 sieve size) moisture compensation, mixing cycle, slump determination and air contents. The average transit mixer operator may be equally guilty of failing to provide adequate controls. Fortunately for him, both good and bad concrete will come out of a transit mixer. Poor quality concrete segregated on the non-agitating producer and a large part of such loads didn't come out of the truck container. The careful producer, who processed quality air entrained concrete, controlled the slump and limited the hauling distance within reason, had little trouble.

When quality air entrained concrete is placed in the right kind of non-agitating unit, there is little difference in the delivered concrete from the first to the last part of the load. Also, there is little variance between loads. The parts and loads are relatively uniform in slump, strength and air content. In ten years experience of delivering more than a million cubic yards of concrete in non-agitating haulers, I have never seen a poor load delivered, on hauls of reasonable distance, where the right kind of concrete (2 min. minimum mixing time, 6-in. or less slump and 4½ percent to 6 percent air) was processed at the plant. Under proper plant controls and other favorable conditions, quality air entrained concrete can regularly be delivered in non-agitating equipment. In fact, today in many plants throughout the United States, producers are delivering such concrete in revolving carriers with the driver rotating the drum only to discharge the load. In Toledo, even though we have recently added agitators to our fleet, we continue to deliver more than half of the concrete we sell in non-agitating dumpers.

To make a success of non-agitating deliveries, it is fundamental that:

1. Well graded materials be used and compensation be made for moisture content of aggregate.
2. Quality concrete of not over 7-in. slump be processed.
3. Length of mixing cycle (not less

than 2 min.) be accurately determined by a mixer timer.

4. Compensation be made at the plant for loss of slump in transit.
5. Air contents always be held within a range of 4 to 7 percent.
6. Adequate hauling units deliver the concrete.
7. Length of haul be kept within safe limits; approximately 45 min.

In delivering concrete by non-agitating equipment, some segregation always takes place. When the concrete is carefully processed, the segregation is so limited that a proper discharge of the hauling unit (either revolving carrier or dumper) will overcome the objectionable condition. Some operators who make non-agitating deliveries in revolving carriers, rotate the drums for approximately a minute before discharging the concrete. At our operations, we raise the "dumper" to a 45 deg. dumping angle, which procedure, together with the shape of the hauling container and the action of an interior baffle, is effective in first moving out the bottom concrete. As many members of the industry who have visited our plants will testify, the delivered concrete, from the first to the last part of each load, varies little in appearance, slump, air content or workability.

In transportation of concrete, loss of slump always occurs. When non-agitators of the dumping type are used, there are no means by which concrete of the same consistency as that originally processed at the mixing plant can be delivered to the job. Slump loss factors must always be compensated for by processing a higher slump concrete than what is required to be delivered.

Producers who are experiencing difficulties with non-agitating deliveries should check:

(a) Are aggregates uniformly well graded? Have you got "hot cement" trouble?

(b) Are slump and air contents held within reasonable limits?

(c) Are standard effective operating practices being followed? (e.g. If hot slag is being delivered, is the material being properly conditioned for use in concrete?)

(d) Is quality air entrained concrete being consistently produced?

(e) Is the trouble in the type of delivery equipment, discharging procedures, or in the length of time between processing and placing.

Quality concrete is being delivered

*Pres., Nicholson Concrete Co., Toledo, Ohio

and job performance satisfactorily handled when concrete is uniform from first to last part of load, hauling box cleans out completely, discharge height of the unit is comparable to that of a high discharge truck mixer and the concrete is otherwise being so discharged that it can be efficiently placed.

Advantages of non-agitating deliveries include the following:

1. Cheap hauling equipment; at least three non-agitators can be put on the road at the cost of two agitators.
2. Faster loading, traveling and unloading. (e.g. when conditions permit, unloading is a matter of seconds. At the minimum, with agitators, several minutes are required.)
3. Lowest operating and maintenance costs.
4. Lower classification driver needed; limited driver training needed.
5. Avoidance of job hold-up problem. Contractors find it pays to promptly unload the trucks. Principally because of this fact, our non-agitators generally make more trips per day than do the agitators.
6. Undesirable practice of adding water on the job is eliminated.

Disadvantages of non-agitating deliveries include:

1. Possible customer resistance;

loss of goodwill with delivery of a poor load.

2. Method not acceptable in some specifications.
3. Length of haul limited. Loads dry up on long hauls, job delays and on warm drying days with hot cement or hot slag.
4. Constant danger of segregation. Unless air content is closely controlled, delivered concrete will not meet specifications or quality requirements.
5. Some loads, for a number of reasons, do not discharge completely. Drivers must climb into the elevated box and loosen the concrete to get the remaining material to slide down through the discharge gate.
6. Concrete limited in consistency range to not over 7-in. slump at mixing plant.
7. Cannot haul regular concrete; all deliveries must be air-entrained concrete.

Undoubtedly, a central mix producer, operating both agitators and non-agitators will receive numerous requests for deliveries to be made in the latter units. Customers may want "wetter" concrete than can be handled in non-agitating equipment or the concrete is to be used on a slow pour. However, under most conditions, if good concrete is being delivered in the non-agitating units, the contractor will be unwilling to pay a higher

price for agitator delivery concrete. You may also find, when low slump (no slump through 2-in.) concrete is required or job conditions call for fast pours, that customers will prefer non-agitating deliveries.

Our Own Experiences

At our Toledo operations, our objectives have been, and are, to:

1. Profitably deliver, anywhere in greater Toledo, quality concrete at lowest cost.
2. Handle peak demands with maximum efficiency.
3. Satisfy customers on quality, service and price.
4. Make maximum use of personnel and equipment.

Putting it in one sentence, our primary objective is to make profitable, on-time deliveries of a quality, reasonably priced concrete.

In 1944, believing that we could better control costs, service and quality so that our primary objective might be more easily accomplished, we changed from transit mixing to central mixing, with deliveries made in non-agitating equipment.

After ten years experience as a central mix producer, with all deliveries (until 1953) made in non-agitating units, we are satisfied that we made a sound move. In these ten years, we have added three plants; we have tripled our annual production. In this period, we have faced some

(Continued on page 236)

CONCRETE FACTS ABOUT CONCRETE PRODUCTS AND UNITS

The Pak-Crete High Speed Block Machine has controllable tamping by the operator, to produce either surface sealed or open textured concrete masonry units of either heavy or light weight aggregate.

For the production of 1400 to 1600 8" equivalent units per 8 hr. day. Ideal to augment production in existing plants. Can produce all shapes of masonry units and is adaptable to sewer blocks, chimney blocks and other specials.

Special Molds can be made to your specification.

The Tamping of this machine is controlled by the operator and you can make a block so dense that it is practically water-proof without any water proofing in the mixture, therefore, producing more density and high strength. More blocks to the bag of cement.

Complete repair parts and service for all Kramer made Machines, stripper or Rock face.

Pak-Crete high speed brick machine mixers, elevator and pallets.

For further details write for circular. Distributors Wanted

PAK-CRETE SALES
3400 W. ADAMS ST. CHICAGO, ILL.

BUY
U.S.
SECURITY
BONDS
NOW!

**I just *
saw it...**



and, it's a Real Answer to my Ready Mix Needs

**But You'll Have to Wait
It's the Show's Biggest Hit
So Remember the Date**

February . . . 15-19, 1954. National Ready Mixed Concrete Exposition,
Booth No. 34 at the Conrad Hilton in Chicago



IT . . . is the very latest in modern truck mixers . . .
features requested by *you* . . . designed and engineered by Rex.

Chain Belt Company, Milwaukee, Wisconsin



CONSTRUCTION MACHINERY

MOTO-MIXERS®

MIXERS

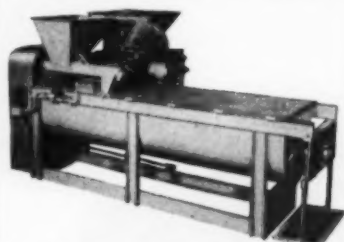
PUMPS

PUMPCRETES®

PAVERS

CONCRETE PRODUCTS, January, 1954
A Section of ROCK PRODUCTS

Jones (formerly Yoder) CONTINUOUS MIXER



Embodies many successful new features, such as positive, non-clogging, vibrating belt feed, insuring constant volume of aggregate regardless of moisture content—no need for costly weighing equipment and moisture determinations.

Accurate proportioning through adjustable aggregate gates. Variable Speed drive for requirements ranging from 5 to 20 cu. yds. per hour. Cost only half that of batch mixer. More thorough mixing—gives up to 50% higher strength than 5-minute batch mix. Special advantages for lightweight aggregates. Illustrated literature and other information on request.

J. A. Jones CONCRETE MACHINERY
108 Horning Road, Pittsburgh 34, Pa.

Use Lime-Proof MAPICO COLORS

to give your
CEMENT and MORTAR products

**Permanent
Beauty**

These pure, high grade iron oxide pigments are unsurpassed for color, strength and brightness. And they'll help you to Keep Costs Down. Our representatives in principal cities are ready to cooperate. Write for full information.

YELLOWS • LIGHT REDS • DEEP REDS
BROWNS • BLACK

COLUMBIAN CARBON COMPANY
MAPICO COLOR DIVISION
MANUFACTURER

BINNEY & SMITH CO., Distributor
330 Madison Ave., New York 17, N.Y.

Non-Agitating Deliveries

(Continued from page 234)

rather terrific problems. Being a non-conformist is quite a challenge. Customer resistance had to be overcome. We had to "sell" the finishers. Specifications had to be changed. We had to learn how to control air content and slump. Plant controls had to be perfected. Operating personnel had to be carefully trained. Proper delivery equipment had to be developed. We had to regularly process and deliver quality concrete. To experience any measure of success, we had to study our business.

In the face of the general record of non-agitating deliveries in the ready mixed concrete industry, it is somewhat reassuring to see our non-agitating trucking units delivering concrete for use on the new Expressway Bridge (State of Ohio Highway Department) and the new Ohio Turnpike Maumee River Bridge. It is even more reassuring to know that the contractors who are building the bridges are well satisfied with both the quality of the concrete and the delivery service. On the Expressway Bridge, where 3-cu. yd. buckets are being used in placing the concrete, it is taking an average of 30 sec. to fill the buckets. On the Turnpike Bridge, figures prepared for us by Dr. H. F. Kriege show 5½-bag, 1½-in. topsize concrete of 2.2-in. average slump is attaining an average 28-day strength of over 4500 lb.

Add Agitators

We made our recent move of adding agitating equipment for a number of varied reasons. Several of our best customers are pouring house basement walls. They prefer a higher slump concrete than can be delivered, without segregation, in non-agitators of the dumping type. We felt some truck mixers should be available for this work and to handle lightweight concrete orders. Out of season, when we are not stocking bulk high-early-strength cement, we are some times asked to deliver early strength concrete. Bag cement can be more easily handled in a truck mixer operation. On non-agitating deliveries, long hauls, coupled with hot cement and unloading delays, have given us some trouble.

We had to be constantly on guard to make certain that our method is approved in all specifications. An unfriendly person could suggest that he didn't want our concrete because of the non-agitating delivery equipment or the necessity of air entrainment. A fair minded individual may have honestly believed that he was more certain of getting quality concrete where delivery was made in agitators. In case of a low test report, it was possible for a material supplier to place the blame on our different method of operation. We couldn't be certain how non-agitating deliveries would fare in a reduced volume, buy-

er's market. In adding some agitators, we felt that we are playing it safe.

We also had a real curiosity to see what would happen. We took the step in the year of our greatest sales volume. We made the move despite the fact that due to heavy Turnpike Construction commitments, a reduced amount of cement would be available for our regular business.

In eight months of operation, the agitators have been well received and their performance has been completely satisfactory. Generally speaking, they are in customer demand. Several customers who didn't like non-agitating deliveries are now buying concrete from us. When required, we can sell regular concrete (without entrained air) and better handle lightweight concrete. The agitators will be helpful in holding and building our business.

Agitators cost more to own and operate. They don't discharge as fast as non-agitating dumpers. They make fewer trips per day. The driver rate is higher. The operator-driver requires extra training. We must now face the problem of adding water on the job. Agitators cannot be used, on rainy days, to haul aggregate and other materials. Under most conditions, we are unable to get a higher price for agitator-delivered concrete.

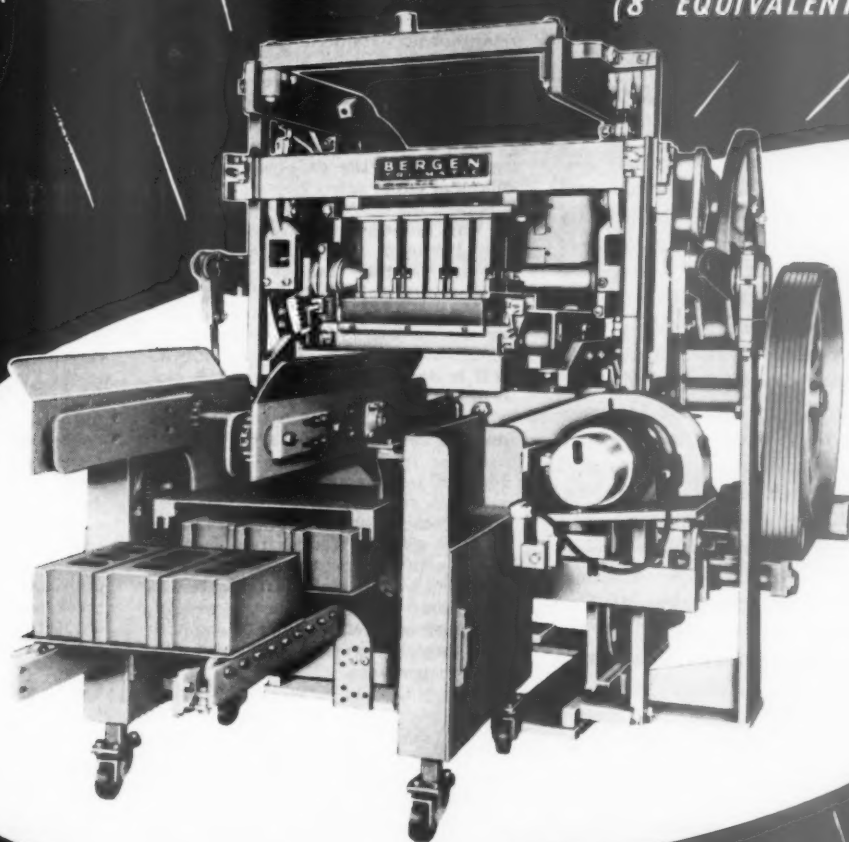
It is our present thinking to use tandem-mounted agitating and non-agitating equipment on a year around basis. This equipment will be out of service only during repair periods and unavoidable down-time. We expect to continue to add tandem mounted agitator units until total tandem equipment is approximately 25 percent more than we need for winter operations. In the building season, non-agitators mounted on single axle trucks will be regularly used. Other unmounted non-agitators on hand will be placed on leased or company owned trucks whenever additional equipment can be profitably operated. Finally, we hope and expect that 15 to 20 percent of our business will continue to be plant pick-up sales delivered in the customers' own trucks.

As we plan to operate both agitating and non-agitating equipment at our plants, we will completely central mix each and every load of concrete. A standard mixing cycle of the same length irrespective of delivery equipment will be used. If continued heavy demands are made at any one plant location, we will speed up plant production by shrink-mixing the concrete with all deliveries made in agitator units. In our opinion, the combination of delivery equipment coupled with plant pick-up sales will give sufficient flexibility to meet peak demand requirements, ride through expected slow periods and handle the big jobs that come our way.

•
CENTENNIAL CONCRETE Co. recently began operation of its new ready-mixed concrete plant at Denver, Colo.

1000

BLOCK PER HOUR
(8" EQUIVALENT)



BERGEN
TRI-MATIC

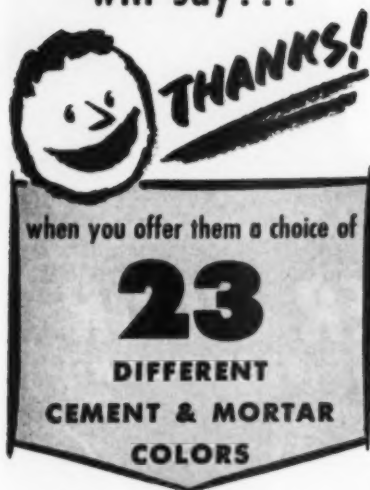
AVAILABLE 3 WAYS

- ON LEASE BASIS
- LEASE with OPTION TO BUY
- OUTRIGHT SALE

Write for literature

BERGEN MACHINE & TOOL CO., INC., NUTLEY, N. J.

Your Customers
will say...



Made by Williams, this is the broadest selection of fine Cement and Mortar colors on the market. By offering your customers a choice of 23 shades, you can quickly and easily settle upon one having the exact chemical and physical properties your color specification requires.

CEMENT COLORS BY WILLIAMS

Here you have a choice of 18 shades—6 Reds, 3 Greens, 3 Browns, 3 Yellows, 1 Black, 1 Blue, and 1 Orange. Each shade is manufactured to meet the most exacting specifications for cement work—as recommended by the American Concrete Institute and the Portland Cement Association.

MORTAR COLORS BY WILLIAMS

Here you have a choice of 5 different shades—one shade in double strength red, light buff, dark buff, chocolate and black. Each of these colors may be used with excellent results with any standard mortar mix or with a ready-made Bricklayer's Cement.



Write today for color samples and complete technical information on how Williams Cement and Mortar Colors give you superior results. Address Dept. 10, C. K. Williams & Co., Easton, Pennsylvania.

WILLIAMS
COLORS & PIGMENTS

C. K. WILLIAMS & CO.

East St. Louis, Ill. Easton, Pa. Emeryville, Cal.

A Competitive Era

(Continued from page 225)

activities will be continued. They include advertising in Sweet's File, Producers Council, technical bulletins, publication of the "Reporter" and "Pictorial," plan services, specialized publications (church, school, residential, basement), giant prints for exhibits, architectural school teaching aids, visual aids, the construction detail manual, participation in allied conventions and special assistance on local or regional associations.

Research is to be continued and expanded, and services on technical problems increased, including work on codes, field inspection, lectures, the handling of technical inquiries and work on committees. A number of needed technical publications will be available in 1954.

The association will continue to maintain important contacts in Washington with agencies affecting the acceptance of concrete masonry and thus establish further its reputation as the voice of the industry.

This is a very ambitious program contemplating the expansion of promotional effort many times over what has been done so far for the industry. It was prepared with cognizance of the Portland Cement Association's program so that there is no overlapping in promotional efforts. Rather, strong liaison is being maintained with the P.C.A. The N.C.M.A. program is coordinated with that of the P.C.A. and is designed to fill a needed gap in the field of promotion.

This program was stimulated by member companies who saw the great need for it. The stimulus was in the form of increasing requests of many members for help in preparing advertising, more literature and other aids to meet growing competition in their local areas from the lumber, clay products and other industries. It was recognized that the industry was ill-equipped to meet the kind of competition which is exerting constantly greater pressure.

This N.C.M.A. promotion program, as we have presented it, is the result of prolonged work of the promotion committee in seeking the right formula and one which would do the job at lowest cost. It was presented to the industry by letter to determine the support it would receive and the result was very favorable with more than 90 percent of letters received from the membership supporting it. Regional associations have also endorsed it and the board of directors, at its Lake Placid meeting in 1953, gave it a complete vote of confidence, to start in the calendar year 1954.

The industry's responsibility is to guarantee continuing financial support of a program of self-preservation that is extremely comprehensive for remarkably low cost. It will require that new members be added to support the enlarged effort of an organization which has already con-

tributed much to their welfare without recognition thus far, and that the existing membership keep accurate production records and pay their pro-rata share. We emphasize again that the monies spent will be for activities that will reach right down into the local level to build markets for each manufacturer.

For a producer of 2 million, 8-in. equivalent units annually, with an estimated income of \$400,000 per year, the new rate of dues is 45 cents per thousand for the first million units and 30 cents per thousand for the second million produced. The total will be \$750 per year. His dues, at the 1953 rate, were \$600 with a ceiling of \$900 established. Thus, his added cost for a greatly enlarged program of service would be \$150 for a production of 2 million units, which breaks down to 15 cents per 2000 units which is an infinitesimal figure.

The minimum established rate of dues is \$90 per year for small operators, based on an annual production of 200,000 units. There is no longer a ceiling on dues but the rate for large production in the higher levels is scaled down so that there will be minimum infringement on the promotional efforts of big companies.

The request for financial support seems, to us, extremely reasonable in view of the changing competitive picture and the opportunity afforded to entrench concrete masonry. It comes at a time when builders find it necessary to give more construction for the money spent—more for the same money, or the same for less money—and when they must trim costs wherever possible and give their customers more for the money. If the concrete masonry industry doesn't show what its product can do, new methods and materials will have an opening. They are awaiting the opening and it needn't happen if the industry will pull together. The markets are there, the economy is sound and it is only a question of who will do the required selling to get the business.

Opens Concrete Silo Plant

MARIETTA CONCRETE CORP., Marietta, Ohio, has started operation of its new concrete stave silo plant in Charlotte, N. C. The plant is located on the property of Superior Block Co., which will continue to manufacture other concrete products.

With the addition of the plant employees in Charlotte, the employee personnel of Marietta Concrete Corp. now numbers over 700. The new plant is under the supervision of Vernon Gatewood, formerly superintendent of the Marietta, Ohio, plant. Sales will be handled through the regular Marietta dealer organization, headed in that territory by C. Hillman Moody, who has been supervising sales in that territory for over five years. The new plant will serve North Carolina, South Carolina, Tennessee, Virginia and Kentucky.

LOOK JOE!...in SECONDS

A... **Clipper** MASONRY SAW

... WILL CUT THE HARDEST
BRICK-STONE-TILE! *

* and at the lowest
cost per cut



LOOK FOR THE
BRIGHT ORANGE COLOR
AND THE
TRADE-MARK CLIPPER!

AND
A...



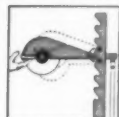
... will **PAY FOR ITSELF** from the
SAVINGS in TIME and MATERIAL

HERE'S WHY!...The DUSTLESS Clipper operates right beside your bricklayers because the Clipper is PORTABLE... easily moved from basement to roof. One Clipper Model HD with a Clipper Diamond Blade will do the cutting of 3 ordinary abrasive saws! This is possible ONLY with such Patented Clipper features as...the Pressure Equalizer Spring, the Famous Select-A-Notch, Water Application System, and Adjust-A-Cut which makes possible One-Spot Operation.

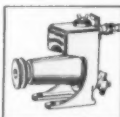
Only with These Patented
Clipper Features is Masonry
Cutting Economical...



PRESSURE
EQUALIZER



SELECT-A-NOTCH



WET OR DRY
PUMP

**TODAY!...Try the New—Faster Cutting—
Economical CLIPPER SUPERIOR BLADES**

... guaranteed to "Consistently Provide the fastest cut...at the lowest cost...with the greatest ease!" Clipper alone can supply all specifications of Abrasive, Diamond and "CBR" (Break-Resistant) Blades to accurately meet your requirements. INVEST IN CLIPPER and YOU'LL GET RESULTS!



Clipper

SAME DAY SERVICE
FROM YOUR NEAREST
FACTORY BRANCH—



• PHILADELPHIA
• ST. LOUIS
• CLEVELAND
• DETROIT
• AUSTIN, TEX.
• CHICAGO
• LOS ANGELES

• BOSTON
• HOUSTON
• MILWAUKEE
• ST. PAUL
• INDIANAPOLIS
• NEW YORK
• PITTSBURG

• SAN FRANCISCO
• CINCINNATI
• ATLANTA
• WASHINGTON, D.C.
• BIRMINGHAM
• CHARLOTTE, N.C.
• DALLAS
• KANSAS CITY

IN CANADA — P.O. BOX 476, WINDSOR, ONTARIO

SOLD ONLY DIRECT FROM FACTORY BRANCHES

IT'S YOURS ON...FREE TRIAL!

ORDER TODAY... on FREE TRIAL. Discover for yourself how CLIPPER... will increase your profits by increasing your production at reduced costs. CLIPPER'S "On the Job" FREE TRIAL guarantees you satisfaction at no obligation!

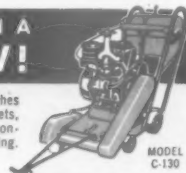
**OUR ONLY BUSINESS FOR NEARLY 20 YEARS...
MASONRY & CONCRETE SAWING!**

The unqualified Clipper guarantee of satisfaction is backed by world-wide experience, the ability to select the finest materials, and the "know-how" to put them together.

**SAW BEFORE BREAKING WITH A
CLIPPER CONSAW!**

Save up to 50% in labor and material. Saw repair patches—gas, water, sewer and air line trenches in floors, streets, walks, runways and highways. Save, too, by sawing contraction joints—eliminate costly hand forming and spalling.

5 MODELS, GAS OR ELECTRIC POWERED



CLIPPER MANUFACTURING CO.

2807 N.W. WARWICK • KANSAS CITY 8, MO.

Send FREE Literature and Prices on:

☐ CLIPPER MASONRY SAWS
☐ DUSTLESS MODELS
☐ DRY ONLY MODELS
☐ CLIPPER CONSAWS
☐ CLIPPER ABRASIVE BLADES
☐ WET
☐ CLIPPER DIAMOND BLADES

COMPANY _____
ADDRESS _____
CITY _____ STATE _____

Quicker, Cheaper Unloading



with *National Car Shaker*

Hundreds of National Car Shaker installations have PAID FOR THEMSELVES through big unloading savings. Many users say that they save up to 80% on unloading costs!

One man can unload coal, coke, cinders, sand, stone, aggregates or other bulk materials in a few minutes, under normal conditions. National Car Shaker eliminates the dangerous part of unloading work, as men are not needed in or on cars.



WRITE TODAY for full information, prices and descriptive literature on the LOW COST National Car Shaker.

National Conveyor & Supply Company

356 N. HARDING AVENUE

CHICAGO 24, ILLINOIS

ALL ABOARD for More Block Profits in '54! OSWALT SERVICE for Vibrapac Owners



Two U.S. Patents have been allowed on Oswalt improvements, one on the Synchronized Vibration, and the other on the Lug Link used in speed-up.

is a tested-and-proven method of materially improving block plant efficiency.

New OSWALT features that insure peak plant performance include Shock-free Block Ejector and Front Pallet Feeder ... Simplified Height and Density Control ... Improved Vibration and Machine Changes to speed-up.

Write for new Oswalt Booklet

OSWALT ENGINEERING SERVICE CORP.

1335 Circle Ave., Forest Park, Ill.
Phones: EStebrook 8-3666, FOrest 6-3898

Prestressed Concrete

Book Review

By M. W. LOVING

Prestressed Concrete, by Kurt Billig, Dr.-Ing., Professor of Civil Engineering, Director of the Central Building Research Institute of India; 470 pages; published by D. Van Nostrand Co., Inc., 250 Fourth Ave., New York 3, N.Y.; \$9.

IN THIS EXCELLENT VOLUME, Prof. Billig has covered the subject of prestressed concrete in a very informative manner; actual cases are described in clear detail and, in most cases, are illustrated with drawings, pictures and examples. Because most of the research, design, manufacture and installation of prestressed concrete units and structures has been done in Belgium, England, France, Holland, Germany and Sweden, this book deals in large part with cases in those countries. The book is divided into three parts: Part I, in 17 chapters, dealing with fundamentals, history and examples; Part II, in 19 chapters, covering design; and Part III, in 15 chapters, covering design problems. A draft code of practice is presented in the appendix.

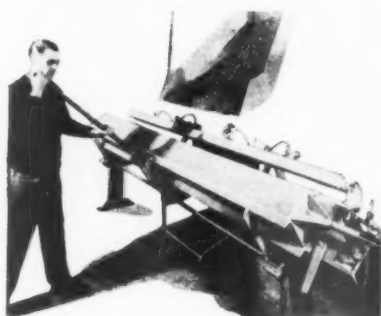
Because many of the subjects presented in this volume are translations from published articles about major work in the countries mentioned above, this is the first time so many important phases of prestressed concrete have been evaluated and can be understood by engineers, manufacturers and contractors in this country and elsewhere. While the book is of primary interest to structural engineers, the several subjects are presented in such an informative manner that they can be understood; even the technical problems are discussed in elementary detail. Reasons are given, based on actual experience of the author and others.

The book is an actual perspective of this important subject throughout the world, and is up-to-date in every way. After each chapter, references are listed of the engineering articles

(Continued on page 242)

KENT

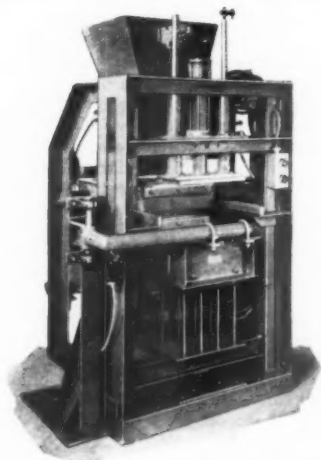
**CONCRETE PRODUCTS
MACHINERY**



KENT Lintelators

produce better lintels and sills faster and more economically than by any other method, opening a new market for profitable sales. Units available for making various sizes.

Builders really "go" for these lintels which simplify installation and harmonize with all concrete structures.



KENT Super BLOCKMAKER

A semi-automatic, push-button machine. One man operation. Combines vibration, agitation and pneumatic pressure to produce strong, smooth topped blocks.

Makes two 4" blocks, two 6" blocks, one 8" block; one 10" block or one 12" block each cycle.

Uses cast iron or steel cored pallets.

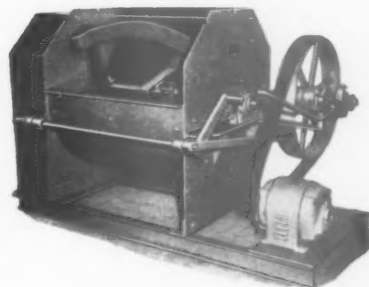
KENT Batch Mixers

Sturdy machines designed for large output with minimum operating and maintenance expense.

All steel construction with replaceable, hardened liners. Heavy duty cast mixing blades. Anti-friction bearings. Positive Conway clutch. V-Type Positive belt drive. Explosion proof motors. Cut Gearing. Self-cleaning discharge gate. Safety grid.

Capacities: 12, 18, 24, 30, 42 and 50 cu. ft.

Write for details and prices.



See us at the SHOREHAM

N.C.M.A. CONVENTION

FEB. 9th, 10th, 11th

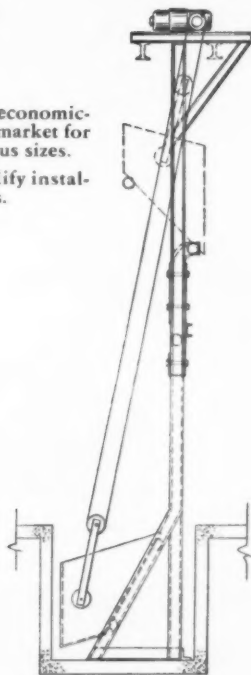


KENT Continuous Mixers

step up output, eliminate production problems, save labor and increase profits.

Fully automatic, the operator Sets it—Starts it and Leaves it to attend to other duties. Up to four aggregates can be fed with the proportion of each accurately controlled. Each is a versatile machine since the number of paddles, their angle and position on the shaft are all variable—also the cycle of mixing and length of time the aggregate is retained is variable up to 12 minutes.

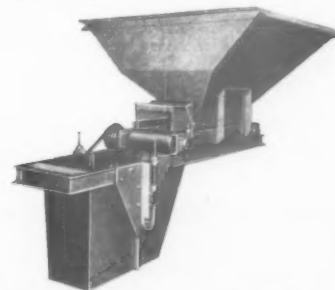
Sizes available for various machines including the largest machines.



KENT Skip Hoist

These hoists, in vertical or inclined type, are available in capacities of 12, 18, 30, 42 and 50 cu. ft.

The heavy duty geared head motor contains mechanism for adjusting the stop positions. Push a button—the skip rises and stops at the dumping position. Push another button and it lowers and stops at the loading position.



KENT Feeders, Elevators, Unloaders, etc.

Machines are available for unloading sand, crushed stone, gravel, aggregate, etc., from under gondola cars, from pits or bins and feeding this material to elevators.

Other elevators are available for delivering concrete from the mixer to bins on block machines, etc.

Literature Available
Specifically Describing
All Products

The **KENT MACHINE CO.** Cuyahoga Falls, Ohio

Manufacturers of CONCRETE PRODUCTS MACHINERY Since 1925

How One

CONTRACTOR MADE MONEY



with a WILLARD "Task Force"

**... on 3 jobs and moved 371 miles
and placed 10,000 C. Y. in '53**

COMPLETELY FREE from central-mix plants and plant erection costs, this contractor handled three specification concrete jobs and moved his Willard equipment a total distance of 371 miles. They were extra profitable because he used the completely mobile Willard self-loading Weigh-Batcher, Conveyor and two Truck Mixers. He batched and mixed up to 30 cu. yds. per hour on the job using stock piled aggregates and bulk cement. There were no erection costs beyond digging a shallow pit for the foot of the conveyor... no loss of time by placing crews waiting for deliveries... and no shipping costs because the equipment moved on its own wheels under its own power.

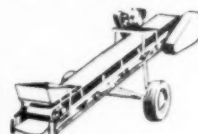
If you are missing those profitable out-of-town jobs it will pay you to get the facts; write for the "Willard Way" booklet.

Manufactured in Los Angeles, California and Galion, Ohio

WILLARD CONCRETE MACHINERY SALES CO.
11700 WRIGHT ROAD, LYNWOOD (LOS ANGELES COUNTY), CALIF.



WILLARD
Weigh-Batch Loader



WILLARD
Mixer Loading Conveyor



WILLARD Truck Mixer

Prestressed Concrete

(Continued from page 240)

on which they are based. Process patents are also listed in many cases.

Prof. Billig's book inspires confidence in prestressed concrete, because it is based on actual experience for which there is no substitute. Excellent concrete units and structures have been designed, manufactured and installed and are giving good service in Europe, and there is no valid reason why it cannot be done on a vast scale in this country. In time it will, because prestressed concrete units and structures have all of the advantages and none of the disadvantages of reinforced concrete of conventional design.

Quite often manufacturers, or potential manufacturers, of prestressed concrete units and structures are apprehensive about which process to employ, whether or not patents claimed are valid, and the like. This book shows what others have done and the advantages and disadvantages of the several processes.

The successful experience with prestressed concrete units and structures in the countries named and discussed in this book is based on extensive research and development work over many years. While it is true that the extensive use of prestressed concrete units and structures was by force of necessity, on account of the shortage of steel in European countries, the fact remains that prestressed concrete is fundamentally sound from every engineering standpoint. Because concrete of any kind made by any process or method has very low tensile strength, even when reinforced with steel in the conventional manner, it has certain limitations and disadvantages. This applies principally to structural cracks and other defects that may lead to failures in service. But when the concrete is precompressed, with high-tensile-strength steel wires, structural cracks are eliminated, the units and structures become elastic and, by using less steel and concrete, better structures are obtained. Prof. Billig calls attention to the need of better concrete, made with

(Continued on page 244)

BATCH and MIX on the job!

**NOW MORE THAN 140 LICENSED MANUFACTURERS
Producing**



**Patented
homeward
Concrete STEPS**

A Small Investment
That Pays Big
Dividends

Homeward all metal forms
are precision built to produce
a product that requires
no hand finishing.

The exclusive franchise for your territory may still be open.

For Complete Information Write
ROGER F. WILLIAMS, Licensor
3420 S. W. 9th St. Des Moines (15), Ia.

**TIME
TESTED!**

Butt Weld

**JOB
PROVED!**

DUR-O-WAL

WITH TRUSSED DESIGN

The Backbone of Steel for EVERY masonry wall. Dur-O-wal is an electrically welded, custom-designed reinforcing member that lies fast in the mortar joint.

Dur-O-wal Products, Inc.
P. O. Box 628
Syracuse 1, New York
Dur-O-wal Div., Dept. 856
Cedar Rapids Block Co.
Cedar Rapids, Iowa

Dur-O-wal Division
Frontier Manufacturing Co.
Phoenix, Arizona
Dur-O-wal Products of Alabama, Inc.
P. O. Box 5446
Birmingham 7, Alabama

Do You Need Big Volume, Low Cost GRINDING?



"AMERICAN" No. 9 Grinder at work for
Columbia Concrete Products Co., Toledo, Ohio

*Here's what this "American"
No. 9 Grinder will do for YOU...*

- Easily deliver up to 30 yards per hour
- Grind wet or dry
- Prepare accurately-sized aggregate from such materials as

CINDERS

SLAG

HAYDITE

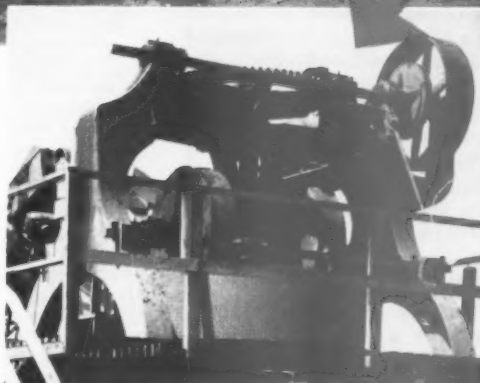
PUMICE

- Require practically no maintenance
- Assure years of trouble-free operation

Complete "American" Grinder specifications sent on request . . . and the experience of an "American" grinding specialist is available to you without obligation. Write, wire or phone.

American **GRINDERS**

By W. A. RIDDELL CORP., Bucyrus, Ohio



**Typical "American"—planned installations
successfully delivering daily plant require-
ments at a profit . . .**

CONNECTICUT

Waterbury • Waterbury Ready Mixed Concrete Co.

ILLINOIS

Chicago • Waylto Company

MISSOURI

St. Louis • Mississippi Glass Company

NORTH CAROLINA

Raeford • Hope Concrete Company

OHIO

Cleveland • Atlas Block Company
Columbus • Wellnitz Tra-Block Co.
Mansfield • Cement Products Company
Toledo • Columbia Concrete Products

PENNSYLVANIA

Saco Siding • Strickbein Cinder Block Co.

TENNESSEE

Elizabethton • Appalachian Stone Products Co.
Memphis • John A. Denio's Sons Co.

TEXAS

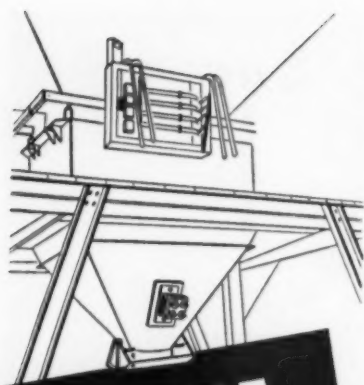
Eastland • Texas Lightweight Aggregate Co.

VIRGINIA

Charlottesville • H. T. Ferran Cinder Block Co.
Fredericks • Frackelton Cinder Block Co.
Roanoke • Cinder Block Inc.

W. VIRGINIA

Ceredo • Union Concrete Pipe Co.



**BIN
STUCK LATELY?**

Concrete products processing plants everywhere have found CLEVELAND air vibrators the solution to their arching, bridging and sticking problems.

With a CLEVELAND, materials move through handling devices efficiently and economically, thus cutting down production time and costs.

We have a size and type, either quiet or standard, to fit your requirements.



Write for our new catalog No. 109.



2712 Clinton Ave. • Cleveland 13, Ohio

low-water-cement ratios and high-quality steel wire, the better bond of such concrete to the steel, and other issues of like importance to engineers and architects.

Because no engineer will use prestressed concrete unless he understands its basic principles, and manufacturers will not produce prestressed concrete structural units unless engineers will specify and use them, a book of this kind goes a long way to help in this direction. It is hardly necessary to add that although a lot

of important progress has been made with prestressed concrete in the United States in the past several years, the fact remains that greater progress can and will be made. Moreover, there is no valid reason why we should not take advantage of the research, development and practical experience in other countries, rather than duplicate what has already been done, thus taking a long time to get into actual production. Prof. Billig's "Prestressed Concrete" will help a lot in this direction.

Western Pipe Meeting

CONCRETE PIPE MANUFACTURERS and associated business men from the West participated in the well balanced and informative program presented at the Western Concrete Pipe Association meeting October 8 and 9 at the Hotel Benson, Portland, Ore. Seventy-five members and guests were registered.

The Board of Directors met at dinner the evening of October 7 to discuss finances, the advertising budget for 1954, promotional efforts, and policies.

At the opening session October 8, secretary-treasurer, Wm. S. Rogers presented a report for the period from January 1 to September 30, 1953, which showed a net gain of eight pipe manufacturers and seven associate members, also two new pipe manufacturers pledged for 1954. The new pipe manufacturer members include one from Arizona, five from California, one from Oregon, and three from Texas. The financial report was also presented.

President H. W. Chutter then made a brief report, commenting that he expected additional membership to be obtained in 1954, and that 3000 directories were printed in 1953 as compared to 2000 in 1952. These directories are mailed to all users of concrete pipe in the West.

The Board authorized the president and engineer to purchase additional hydrostatic testers for 14-, 15-, 16- and 18-in. diameter pipe. Following considerable discussion relative to competitive materials, it was agreed that more promotional activity should be developed. Members are to be circularized to ascertain their interest in the purchase of a discharge calculator by the association for distribution to members at a quantity cost on their direct orders.

Field Engineer Eph Dyer, Jr., made his report of his activities for the past six months which included visits to practically all members' plants in the western states, and involved considerable testing of members' pipe.

A report was made of the recent meeting of A.S.T.M. Committee C-13 in Chicago on proposed revisions of specifications on concrete pipe. There were two matters up for consideration which were of much interest to the members. One of these was the

tentative revision of A.S.T.M. Specifications C-14 (non-reinforced sewer pipe) to substitute a permeability or "fill" test for the hydrostatic. The Western Concrete Pipe Association had its field engineer conduct a series of comparative fill and hydrostatic tests which were submitted to Committee C-13. Later advice is that Committee C-13 decided to leave the "fill" test as tentative for another year to permit further investigation.

A suggestion was made to the Committee that A.S.T.M. Specifications C118 for irrigation pipe be revised to include drain tile (tongue and groove) and to include 3-, 4- and 5-in. sizes. A further suggested change in C118 was a foot note reading "where alkali or sulphates are present, sulphate resistant cement shall be used in manufacturing, and the maximum allowable absorption shall be 5 percent." In this case, Committee C-13 adopted these recommendations with the exception of including the 3-in. diameter.

A brief report was made on research work being done by Tulane University and the American Concrete Pipe Association on corrosion of concrete pipe. After considerable discussion, it was agreed that a survey should be made by Western Concrete Pipe Association to obtain the opinions of consulting engineers and others relative to the period of time existing before raw sewage causes trouble under varying conditions.

Other matters discussed were sulphate-resistant cements, fabric mesh reinforcing, boiler pressures, promotional literature, labor and taxes.

Attention was called to the recent publication by the Civil Aeronautics Administration of a pamphlet titled "Airport Drainage" which covers the subject in general and includes sections on design and methods of construction, including a table giving the recommended minimum depth of cover for conduits of all types of pipe.

Hugh Ford and Gilbert Williamson gave interesting accounts of their visits to Europe this summer, describing several types of European pipe manufacture.

It was voted to hold the annual meeting in Fresno the middle or latter part of April. Suggestions were made that the 1954 fall meeting be

Your Plant Needs

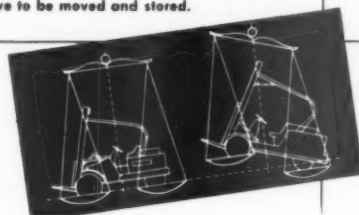
the COUNTER-ACTIVE
WEIGHT DISTRIBUTION of

GERLINGER LIFT TRUCKS!

In the concrete field especially — where continual changes in load widths and weights are a common transportation problem — Gerlinger Lift Trucks have consistently outperformed other material handlers. Most important reason for this leadership is the nearly even weight distribution of the Gerlinger.

When unloaded, 54% of the lift truck weight remains over the front wheels of the Gerlinger. This unusual balanced weight distribution — an exclusive Gerlinger feature — allows the driving wheels to obtain top traction and braking power under changing load weights and sizes.

It's just one of many job-proven features that make Gerlinger Lift Trucks first choice in concrete products plants where off-size loads have to be moved and stored.



● Gerlinger's exclusive Counter-Active Weight Distribution is graphically shown here in comparison with the excessive counter weight of other lift trucks. This nearly even weight distribution assures ample braking power at all times, longer tire life, less frame strain and the maximum steering and operating ease



GERLINGER CARRIER CO., DALLAS, OREGON

FREE SERVICE for Buyers

- Admixtures, Aggregate
- Aftercoolers, Air
- Agitators
- Aggregates (special)
- Air Compressors
- Air Separators
- Asphalt Mixing Plants
- Bagging Machines
- Bags
- Barges
- Batchers
- Belting, Conveyor, Elevator, Power Transmission
- Belting, V-type
- Belt Repair Equipment
- Bin Level Indicators
- Bins and Batchling Equipment
- Bits
- Blasting Supplies
- Block Machines, Concrete Building
- Bodies, Trailer
- Brick Machines and Molds
- Buckets
- Bulk Cement Handling Equipment
- Bulldozers
- Cars, Industrial
- Central Mixing Plants
- Classifiers
- Clutches
- Coal Pulverizing Equipment
- Concentrating Tables

- Concrete Forms
- Concrete Mixers
- Concrete Mixing Plants
- Concrete Specialty Molds
- Concrete Waterproofing and Dampproofing
- Conveyors
- Crushers
- Coolers
- Cranes
- Curing Equipment
- Derricks
- Dewatering Equipment
- Sand
- Diesel Engines
- Dragline Cableway
- Excavators
- Draglines
- Dredge Pumps
- Drilling Accessories
- Drills
- Dryers
- Dump Bodies
- Dust Collecting Equipment & Supplies
- Electric Motors
- Engineering Service, Consulting and Designing
- Explosives & Dynamite
- Fans and Blowers
- Feeders
- Fifth Wheel, Heavy Duty
- Special
- Flotation Equipment
- Front End Loaders

Get information and prices quickly on machinery, equipment. Check item (or items) about which you desire information. Send to us.

Send To:

Research Service Department ROCK PRODUCTS

309 W. Jackson Blvd.

Chicago 6, Ill.

- Gasoline Engines
- Gear Reducers
- Generator Sets
- Grinding Media
- Gypsum Plant Machinery
- Hard Surfacing Materials
- Hoists
- Hoppers
- Kilns: Rotary, Shaft, Vertical
- Locomotives
- Lubricants
- Magnetic Separators
- Masonry Saws
- Mills
- Pipe
- Pumps

- Scales
- Screen Cloth
- Screens
- Scrubbers: Crushed Stone, Gravel
- Shovels, Power
- Speed Reducers
- Tanks, Storage
- Tires and Tubes
- Torque Converters
- Tractor Shovels
- Tractors

- Trailer Dump Bodies
- Trucks, Bulk Cement
- Trucks, Industrial
- Trucks, Mixer Body
- Trucks, Motor
- Valves
- Vibrators
- Welding and Cutting Equipment
- Winches
- Wire Cloth
- Wire Rope

If equipment you are in market for is not listed above, write it in the space below.

Your Name _____ Title _____
Firm Name _____
Street _____
City _____ State _____

RP-1

SAVE MORE WITH A SUPERLITE UNLOADER

CUT COSTS 50% AND MORE

SOME OF OUR CUSTOMERS REPORT THAT THEY ARE NOW DELIVERING AS MANY BLOCKS WITH ONE TRUCK AND ONE MAN AS THEY DID FORMERLY WITH TWO TRUCKS AND 4 MEN

SIMPLE ARITHMETIC INDICATES MORE THAN
50% SAVING

WHAT OTHERS ARE DOING—YOU CAN ALSO
ACCOMPLISH

SUPERLITE UNLOADERS

DON'T COST — THEY SAVE

Write today for complete information

BUILDERS EQUIPMENT COMPANY

4012 N. CENTRAL AVENUE, PHOENIX, ARIZONA

held in Salt Lake City or Los Angeles. It was agreed that the fall meeting place would be decided upon at the annual meeting.

Forum Discussion

On Friday morning, an open forum for discussion of industry matters was conducted by a panel consisting of Henry Weigand as moderator and M. W. Crouch, E. C. Fortier, Homer Marx and Ken Sheppard as members. A discussion on the possibility of fatigue in concrete pipe brought out the opinion it was not likely to occur.

Septic tank construction was discussed, several commenting difficulty was encountered in getting permission to use concrete pipe for tanks. It was agreed that this was a local promotional problem with the proper authorities.

E. N. McKinstry, city engineer of Medford, Ore., discussed the use of a new type of sewer joint developed by the Medford Concrete Construction Co., which is practically self-aligning. The subject is covered by an article by Mr. McKinstry appearing in the August, 1953 issue of *Western Construction*.

Friday afternoon was devoted to guest speakers and motion pictures.

Otis Small of the Ideal Cement Co., formerly chief chemist at Redwood City, Calif., discussed the various types of cement manufactured, the specification differences, and the uses for which they were suitable. Ray

Erickson

• Pioneers in the Concrete Products Industry •

POWER LIFT TRUCKS

New Model
F-4R
4000 lbs. capacity
1 of 9 models



Send for
Catalog

THE FIRST ERICKSON was built 30 years ago by George Erickson, Sr., at home in his own garage. As superintendent in a concrete block plant, he saw the great need for a more rugged, easier handling lift truck which would "stand the gaff" of the severe work conditions in the industry. George Sr. was joined 15 years ago by his son George Jr. in a full-time manufacturing business. Today Erickson Power Lift Trucks are known throughout America and many foreign countries for their remarkable traction under ALL conditions, ease of handling, ruggedness and long life. An Erickson owner named it—"the workhorse of lift trucks." The Erickson line includes 9 fork models from 2,000 to 20,000 pounds capacity. A variety of fork styles are available, also fork side-shifter, hydraulic scoop and other attachments, 4 speeds forward, 4 speeds reverse.

Erickson also makes platform models to 7,000 pounds capacity, with platform size and height of lift "custom-built" for your requirements.

NEW HOME—New building now nearing completion, will provide facilities to triple present production.

See us at the
**N. C. M. A.
CONVENTION**
Washington, D. C.
FEBRUARY 8-11, 1954

ERICKSON POWER LIFT TRUCKS, Inc.

1405 Marshall Street Northeast
MINNEAPOLIS 13, MINNESOTA

Webber, assistant construction engineer of the Oregon State Highway Dept., presented an interesting paper, "Soils as Related to Highway Drainage."

The outstanding event of the meeting was the excellent talk given by Prof. C. W. Gleeson, Dean of the School of Engineering of Oregon State College on "The Most Necessary Human Attribute." The speaker graphically described man's progress, and the complexities and rapid development of modern civilization. He described the most necessary human attribute as the imaginative ability of man to develop something entirely new for the benefit of mankind.

Two excellent sound pictures showing operational problems under widely different conditions were shown through the courtesy of the Southern Pacific Co., and one showing the widespread operations of the Ideal Cement Co.

The arrangements committee under the chairmanship of Wm. J. MacKenzie took care of the registrations, hotel arrangements, etc., in excellent fashion. Several ladies were taken on a sight-seeing trip of Portland through the courtesy of The Tuerck-MacKenzie Co. A cocktail party was furnished through the courtesy of the associate members, preceding the dinner held in the Crystal room of the Hotel Benson.

Concrete Short Course for Army Students

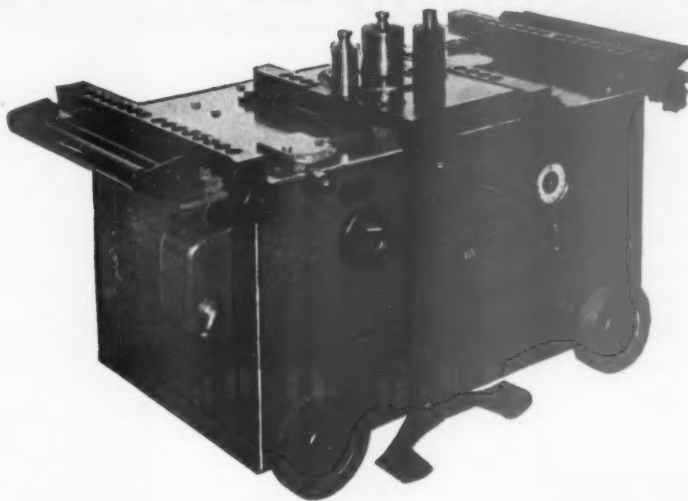
A CONCRETE SHORT COURSE, presented jointly by the Portland Cement Association and the Building & Structures Branch of the Fourth Army, was recently held at Fort Sam Houston, San Antonio, Texas, for a group of Army students.

The short course included a visit to the ready-mixed concrete plant of Turner Gravel Co., San Antonio, where the group heard short talks by Roy McCandless and other officers of the company, covering the latest technical advances in the preparation and delivery of ready-mixed concrete. The students then inspected the various phases of the company's concrete production, including the delivery of the aggregate by Acme Gravel Co., and the weighing, truck-mixer loading, and radio-truck dispatching system. Special interest was shown in the sampling and testing procedures employed to maintain quality control of each batch of ready-mixed concrete.

Customer Service

J. P. LOOMIS Co., Akron, Ohio, has signed an agreement with Radio Station WCUE to broadcast 14 daily weather and temperature reports to assist concrete contractors in scheduling their jobs. Although this service has been performed in the past for many other industries and lines of business, it is the first time in the Akron area it has been designed primarily for the concrete contracting field.

Automatic . . . Bar Bending Machine



This new Bending Machine features all the latest improvements called for in modern fabricating methods. Right and left-hand bends can be made without additional adjustment by means of a single control lever.

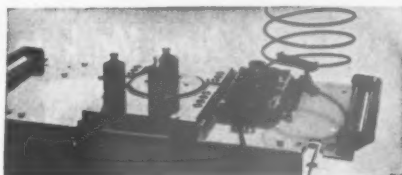
The variable speed drive is easily adjustable to suit any thickness of material assuring high operating efficiency even when handling light stock.

Automatic stop and return control provides maximum safety and uniform work.

Special attachments permit the bending of hooks and angles on slab, truss or offset bars. Also will bend spirals, rings and curves of any diameter and pitch.



Stirrup Bend



Spiral Bend



Large Double Bend



Multiple Double Bend



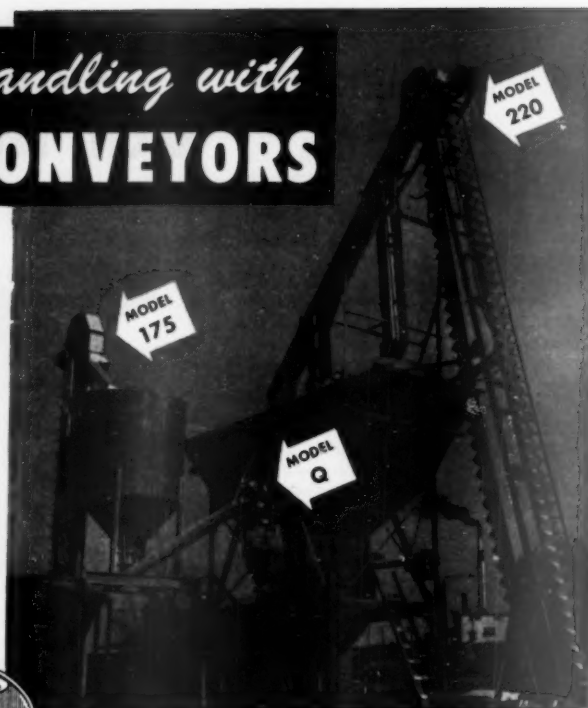
KLINGELHOFER MACHINE TOOL CO.
INDUSTRIAL PARK, KENILWORTH, NEW JERSEY

Improve Material Handling with **BAUGHMAN** Hi-Speed job-fitted **CONVEYORS**

There's a low-cost, Hi-Speed, better-built BAUGHMAN for every contracting need—belt-and-bucket, (Models 175 and 220), troughed belt (Model 230), or screw-type (Model Q-51). Before you buy any portable or stationary conveyor, let your distributor demonstrate BAUGHMAN'S years-ahead features—or write for full details. Model TST-10 Bulk Material Transport Body. To haul cement or other dry powdered material. Completely self-unloading by Twin Auger Discharge. Write for complete literature.



There's a Baughman
Distributor Near You!



BAUGHMAN MANUFACTURING CO., Inc.
123 Arch Street • Jerseyville, Ill.

SOFFIT BLOCK

(Filler for Floors and Roofs)

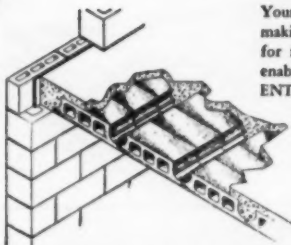
Opens Up New Markets

- FIRESAFE
- PERMANENT
- RIGID
- ECONOMICAL



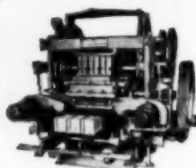
**Gives FLOORS and ROOFS
Lifetime Permanence ...
Cuts Construction Costs!**

Your profits will greatly increase by making and selling Soffit Filler Block for floors and roofs. Soffit Block enables your customers to make an ENTIRE structure firesafe and permanent, and do it economically. Illustration at left shows integral joist and slab of reinforced concrete. Meets standard building code requirements. Recommended by architects and builders.



BESSER VIBRAPAC

Soffit Filler Block are made on the same machine that produces quality concrete load-bearing block for walls, in all styles and sizes, using one set of Plain Pallets. Write for literature and names of Vibrapac plants making Soffit Block.



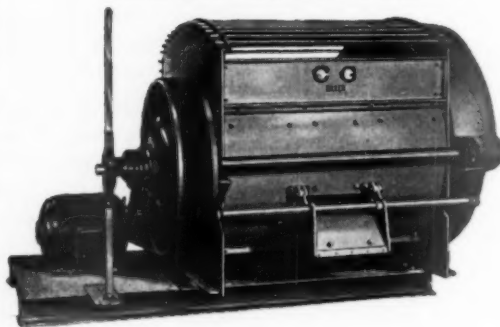
BESSER MANUFACTURING CO.
ALPENA, MICHIGAN, U. S. A.

Complete Equipment for Concrete Products Plants

THE FAMOUS C. G. MIXER

SIZES . . 7 . . 14 . . 24 . . 36 . . 50 of CAPACITY

**AND
BLOCK SPLITTER**



Equipped with . . .

Abrasion Resisting steel liners
Motor and V. belt drive or
clutch pulley drive

Write for literature and prices

DES PLAINES CONCRETE MACHINERY CO.
930 North Avenue . . . Des Plaines, Illinois

N.C.M.A. Program

THE 34TH ANNUAL CONVENTION of the National Concrete Masonry Association will be held in Washington, D. C., February 9-11, 1954. Headquarters will be the Shoreham Hotel.

In keeping with the established policy, there will be no exhibits at the convention this year.

Following is a resume of the program by dates:

Tuesday, February 9

The convention opens with Sam Paturzo, president, introducing Most Reverend Patrick A. O'Boyle, D.D., Archbishop, Washington, D. C., who will deliver the invocation. The welcoming address by Renah Camalier, commissioner, District of Columbia, will follow. Committee reports by Carroll Strohm, Jr., secretary-treasurer of N.C.M.A. and Nominating Committee Chairman Glen C. Barnes, precede the election of directors.

President, Sam Paturzo, V. Paturzo Bro. and Son, Inc., Baltimore, Md., will deliver the president's message, which will be followed by additional reports from E. W. Dienhart, executive-secretary; the "Washington Report" by Theodore Leba, Jr., Washington representative of the association; and an address by John Murphy, secretary, Bricklayers, Masons, Plaster International Union of America.

A discussion of the "Architectural Competition," with Lew Anderson, president, Nebraska Concrete Masonry Association, and H. J. Stockard, executive secretary, North Carolina Concrete Masonry Association, will conclude the morning session.

The afternoon session will begin with S. Carl Smithwick, Smithwick Concrete Products, Portland, Ore., presiding.

A report by R. E. Copeland, director of engineering, will be followed by the feature speaker, Hon. Douglas McKay, U. S. Secretary of the Interior. There will be additional reports by Wm. Demarest, Jr., secretary for Modular Coordination, A.I.A. and Stanley M. West, mason contractor, Cleveland, Ohio.

William Nelson, president, M.C.A.A. will deliver a message which will be followed by the door prize award.

The evening program will include an informal party with members of the Washington area as hosts.

Wednesday, February 10

The session opens with Otto Buehner, Buehner Concrete Block Co., Salt Lake City, Utah, presiding. A series of messages and reports will be delivered by W. P. Markert, director of promotion, N.C.M.A.; Frank Erskine, president, Expanded Shale Institute; Yates Cook, director of housing and rehabilitation, N.A.H.B.; Dr. Thomas Locraft, architect, Locraft-Wright, Architects, Washington, D. C.; and Commissioner Guy T. O. Holliday, Federal Housing Authority.

(Continued on page 251)



Modern transportation demands the ultimate in materials handling. This Towmotor LT-60 is one of a fleet owned by the Flying Tiger Line.

TOWMOTORS
IN ACTION
IN U. S.
INDUSTRY

Get up and go...

Towmotor has the "get up and go" you want to speed materials through each step of receiving, storage and production right into the carriers—even when you're short-handed! This "one-man-gang" lifts, carries, lowers and positions any load that can be handled.

If you like to break records, if your boss is economy-minded, you'll want all the new Towmotor features, including Towmotor Towmo-Torque Drive, Power Steering, and "Cushioned Power" Diesels. Send for free booklet, "What Makes It Tick?" TOWMOTOR CORPORATION, Div. 4901, 1226 East 152nd Street, Cleveland 10, Ohio.

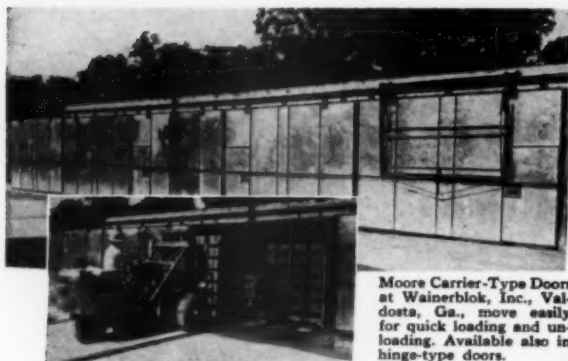
TOWMOTOR

THE ONE-MAN-GANG

FORK LIFT TRUCKS and TRACTORS

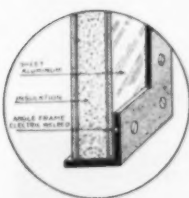
Since 1919

TOWMOTOR ENGINEERED FOR QUALITY PERFORMANCE



Moore Carrier-Type Doors at Wainerblok, Inc., Valdosta, Ga., move easily for quick loading and unloading. Available also in hinge-type doors.

Moore Metal-Insulated Kiln Doors Save Fuel—Reduce Curing Time



Keep heat where it belongs—inside the kiln—with Moore Alumnum-Insulated Doors. They improve curing conditions—save steam—last longer.

Send us dimensions of present door openings for quotation.



MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Lumber and Veneer Dryers
JACKSONVILLE FLORIDA BRAMPTON, ONT. CANADA VANCOUVER B. C. CANADA NORTH PORTLAND OREGON



HI-PRODUCTION MODEL

Saves

LABOR
MAINTENANCE
ADJUSTMENT
HANDLING
REPLACEMENT

34 Split Units
Per Minute

Increase Your Sales With A TRU-AX BLOCK SPLITTER

PNEUMATIC MODEL



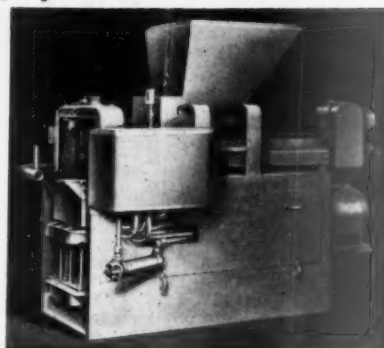
Cash in on the growing demand for split concrete block with these sturdy and mobile machines that embody the latest in engineering design and are tested for performance.

Write today for information
TRUAX MACHINE & TOOL
COMPANY

16 Michigan St.
Seattle 8 Washington

HYDRO-KORPAK

The Superfine Block Machine



At last comes a block machine of streamlined compactness, where high production is obtained by low labor costs, and where initial investment is in line with modest budgets. In design, operating efficiency, capacity range and price, the Hydro-Korpak is aimed to bring the production economies of advanced engineering within reach of average sized plants with normal sales potentials.

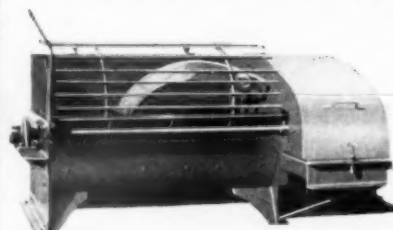
The Hydro-Korpak is marked by such outstanding features as 1-man operation . . . hydraulic movements . . . electrical controls . . . and the exclusive compacting principle of pre-densifying by core oscillation which gives a combination of vertical and lateral packing. Rugged but compact, with 2 1/4 tons of machine, completely self-contained, and dimensioned to occupy only 33 square feet of floor. Write at once for free descriptive literature.

CONCRETE EQUIPMENT COMPANY

544 Ottawa Avenue • Holland, Michigan

K-1

PRASCHAK MIXERS



8 Cu. Ft. \$520.00
16 Cu. Ft. \$693.00
21 Cu. Ft. \$777.00
30 Cu. Ft. \$1100.00
50 Cu. Ft. \$2300.00

"THE MIXER THAT CAN TAKE IT"

FEATURE: "Wearhard" Cast Sectional Liners and Blades, Heavy Steel Main Shafts, Rugged Ball Bearing Units, Locking Discharge Control, Extra Heavy Gears, All Welded Heavy Steel Construction.

We Also Manufacture

Block Machines, Conveyors, Hammer-mill Crushers,
Bucket Elevators, Lift Trucks, Rotary Screens, Silo Stave
Machines

PROMPT DELIVERY

Write today for complete information

PRASCHAK MACHINE CO.

MARSHFIELD

WISCONSIN

At the afternoon session W. R. Ireland, president, Atlanta Aggregate Co., Atlanta, Ga., will present Vice-President Richard Gray, American Federation of Labor, and the Hon. Walter Williams, Assistant Secretary of Commerce, who will deliver messages of interest to the members. Following these speakers will be a talk on, "Control Joints," by C. A. Serrine, executive secretary of Michigan Concrete Products Association. Jesse C. Saemann, University of Wisconsin, will make the closing address.

A banquet and floor show, followed by a dance, will be held Wednesday evening.

Thursday, February 11

The morning session will be opened by M. E. Rinker, president-elect, National Concrete Masonry Association, as presiding officer. Messages will be delivered by Edward Mangotich, assistant engineer, N.C.M.A., and George Adams, Concrete Products, Ypsilanti, Mich. A panel discussion with John S. Mock, business consultant, as moderator will be the closing feature of the convention.

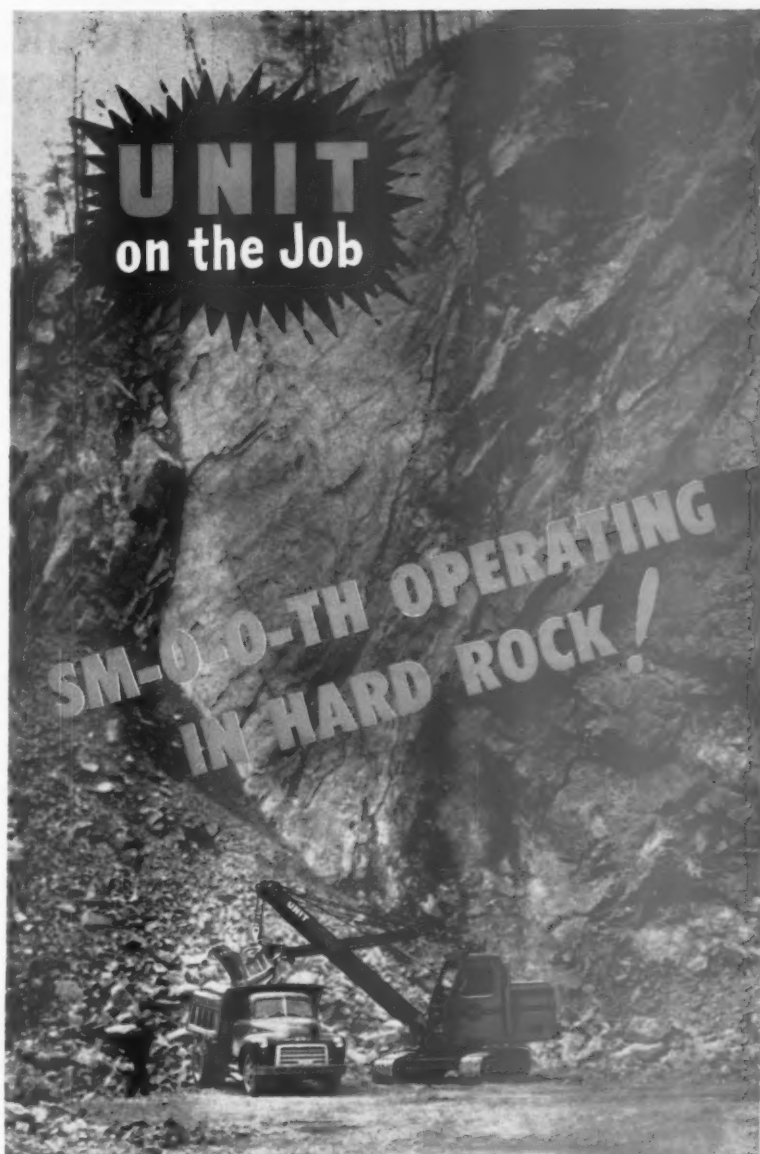
Concrete Technology

THE UNIVERSITY OF CALIFORNIA extension, in cooperation with the Portland Cement Association, the National Sand and Gravel Association, the National Ready Mixed Concrete Association, the Southern California Rock Products Association, and the Southern California Ready Mixed Concrete Association, will conduct a short course in the technology of concrete at U.C.L.A. beginning January 25 through January 29, 1954. Classroom lectures, demonstrations, laboratory work and a field inspection will be included. The course will cover the requirements of the concrete components, cement, sand and gravel and water, as well as the technique of mix design, quantity measurement and concrete handling.

Principal instructors for the course will include Samuel Hobbs, engineer of structure, Portland Cement Association; Joe W. Kelly, professor of engineering, University of California; and Stanton Walker, director of engineering, National Sand and Gravel Association.

Lintel Design

THE NATIONAL CONCRETE MASONRY ASSOCIATION recently announced publication of a 36-page booklet, CM-121, on "Design and Construction of Lintels for Concrete Masonry Buildings." The booklet, containing 10 design tables together with construction details and related data, was prepared to supply technical information to help simplify the design of reinforced concrete, lightweight concrete and reinforced concrete masonry lintels, and as a supplement to other existing material on conventional types of lintels. The booklet is expected to provide valuable assistance to architects.



For working hard rock, UNIT with TORQUE DRIVE offers: Full, steady power without stalling engine— Increased lugging power — Elimination of shock loads on machinery. Investigate these advantages and other UNIT features. Write for Bulletin No. U-1153.

UNIT CRANE & SHOVEL CORPORATION

6431 WEST BURNHAM STREET • MILWAUKEE 14, WISCONSIN, U. S. A.



**1/2 or 3/4 YARD EXCAVATORS...CRANES UP TO 20 TONS CAPACITY
CRAWLER OR MOBILE MODELS... GASOLINE OR DIESEL**



All Models Convertible to ALL Attachments!



VOLCOLITE LIGHTWEIGHT INSULATING BLOCK AGGREGATE

Idaho White Pumice Aggregate is used in approximately 85% of all blocks sold in the Intermountain area. 15 years of successful production and use.

Makes a strong, lightweight load-bearing block. 8 x 8 x 16 with approximately 45% core space weighs dry 22 to 25 lbs. P. s. i. range from 850 to 1200.

Underwriters' Laboratories rating B-4, meaning 4 hours fire-retardant, given to blocks made of Volcolite White Pumice. Contains no Bentonite.

VOLCOLITE

Aggregates for Block, Concrete, Stucco, Plaster. Also Insulation, Roofing, Acoustical Traction Granules and Truck Sander Grits.

WRITE FOR FREE BOOKLET:
"The Story of Idaho Pumice,"
showing opportunities for you.

PUMICE INCORPORATED

Box 517, Idaho Falls, Idaho

VOLCOLITE White Pumice Aggregate is ideal for use in colored split block, brick or tile. Beautiful rough texture granite-like effect, commanding premium price.

YOUR KEY TO POSITIVE ANCHORAGE IN CONCRETE

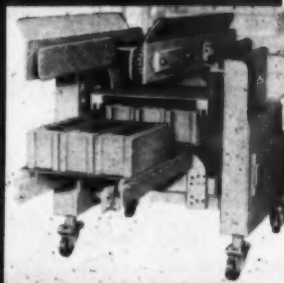


PERMANENT RUST PROOF THREADED SOCKET

SEE YOUR BLD'G. MATERIAL SUPPLIER
OR WRITE TO:

STAR EXPANSION PRODUCTS CO.
147 CEDAR ST. N. Y. 6, N. Y.

BERGEN FRONT PALLET RETURN *Returns Pallets OVER outcoming block!*



May be used on
Besser Vibrapac

BERGEN MACHINE & TOOL CO., INC., NUTLEY, N. J.

Detachable to roll
away in 30 seconds!

- Uses 18-1/2 x 26" or 19 x 27" pallets
- Adjustable for block heights-3-1/2 to 9-1/8"
- Can't be fouled by falling concrete
- Eliminates pallet chain conveyor ass'y

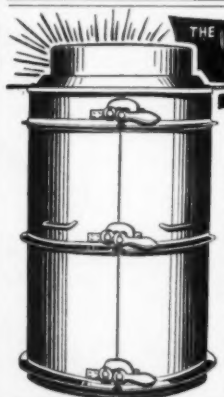
Write for bulletin

NOW IS THE TIME TO CONSIDER . . Autoclaving

Now is the time to consider Autoclaving your concrete masonry units. Write us for technical information on the importance of using Silica Flour for a better product.

SOUTH RIVER SAND CO.

Marcus S. Wright, Jr., President
OLD BRIDGE, NEW JERSEY



THE Quinn Standard

FOR CONCRETE PIPE

The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that Quinn pipe forms and Quinn mixing formulas combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost.

WRITE TODAY. Complete information, prices, and estimates sent on request.

Also manufacturers QUINN CONCRETE PIPE MACHINES

QUINN WIRE & IRON WORKS 1603 12TH ST. BOONE, IA

WHERE TO BUY

GRAVEL DEPOSIT AVAILABLE AS JOINT BUSINESS VENTURE

Gravel Deposit of 23 Acres Available 25 Miles from Boston
20 Acres More Under Option
70% Stone—30% Sand—Meeting Highest Tests

Thompson & Lightner reports available

WANTED

TO PURCHASE AND OPERATE ON A 50-50 BASIS SAND AND GRAVEL CRUSHING AND WASHING PLANT — NEW OR USED — WITH 2 CRUSHERS TO PRODUCE 600 TO 800 TONS DAILY.

Property located on Route 85 in Southboro. Three miles from Framingham line.

WANTED ALSO

A READY-MIX CONCRETE COMPANY TO SET UP PLANT ON OUR PROPERTY, ON RAILROAD SIDING, 1 MILE FROM DEPOSIT, TO WHOM WE WILL SELL AGGREGATE ON LONG TERM BASIS.

Tests and borings assure 800 gallons of water per minute. All zoning laws and necessary permits complied with.

Have you any good crushers, bins, shaker screens, conveyors or belting for sale?

New proposed Toll Road to pass within 400 yards from our deposit. Centrally located twenty miles from Newtonville, Worcester, Waltham and Franklin.

Large deposit suitable for Hot Top Plant. Ideal location for concrete pipe yard, also concrete block plant.

THE MASSACHUSETTS TURNPIKE AUTHORITY & MASSACHUSETTS DEPT. PUBLIC WORKS HAVE ACCEPTED (DEC. 2, 1953) PLANS. BIDS WILL OPEN SOON.

Ideally located for furnishing materials for Toll Road.

Also 60 acres of fill on site of proposed Toll Road

FRAMINGHAM SAND & GRAVEL CO., INC.

83 CONCORD ST., FRAMINGHAM, MASS.

Tel. Wellesley 5-2044 Evenings

STOCK SPECIALS

FOR SALE OR RENT

- 1—P & H Model 855 Crawler Shovel, 2 yd. capacity. Cat. Diesel power. Reconditioned.
- 1—P & H Model 700 Crawler mounted Crane, 1½ yd. capacity. Gas power. Good all-around condition.
- 1—P & H Model 655B Crawler Crane, 1½ yd. at D 13000 power. Late model. Excellent.
- 1—Osgood, 1 yd. Crawler Hoe & Crane, 50' boom. Gas Power. Good Condition.
- 1—Koehring Model 301 ¾ yd. Crawler Crane, 50' boom. Serial #1277. Very good used condition.
- 1—Bay City Model 45 ¾ yd. Crawler Hoe-Shovel-Crane. Late model in perfect condition. Cat. D318 or GM Diesel power. Gas.
- 1—Northwest Model 25 Crawler Crane, Hoe or Shovel, ¾ yd. Gas Power. Good Condition.
- 1—Buckeye Model 70, ¾ yd. Crawler Hoe or Crane, available as Gas or Diesel. Excellent.
- 1—Link Belt Speeder Model D-4 Crawler Crane, 35 ft. boom, 16" crawler shoes, Cat. D-7700 engine. Reconditioned.
- 1—Bay City Model 30, Heavy Duty ½ yd. Crawler Shovel or Hoe. Gas Power. Reconditioned. Late Model.
- 1—Bay City Model 25, ½ yd. Crawler Shovel or Hoe. Late Model. Rebuilt.
- 1—Insley Model K-12 Crawler Shovel or Hoe, ½ yd. capacity. Gas Power. Excellent Shape.
- 1—Michigan C-16 Crawler Shovel, ½ yd. Gas power. Late model in good condition.
- 1—Byers Model 61, ½ yd. Crawler Hoe or Crane. Gas Power. Good condition.
- 1—Universal Truck Crane, 28 ft. boom, mounted on A. C. Mack Chassis. Single axle rear.
- 1—Bay City Model 65 or 650 Shovel Attachment with 1¼ yd. shovel dipper. Practically new.
- 1—P & H 255A Hoe Attachment. Practically new.

Clamshell Buckets, ¾ to 2 cu. yd., also several Crane Booms—Trench Hoes and Shovel Attachment—Assorted makes.

EUGENE P. READING, INC.

Walnut St. & B. & O. RR
Roselle, New Jersey
Chestnut 5-0200—New Jersey

SPACE HEATERS

War Surplus Bargain

New — Ready To Use!
40,000 BTU capacity

- Burning gasoline, kerosene or diesel fuel.
- Electric blower—12 V. DC or 110 V. AC using small transformer which we furnish with each heater.

Portable, Quick, Clean Heat

Ideal for curing room, concrete plants, work under construction, emergency heat, or auxiliary heaters.

\$95.00 each

Clapp, Riley and Hall Co.

14 No. Clinton St.,
Chicago 6, Illinois

WANTED: Septic Tanks that need cleaning!

BIONETIC is a safe, sure, economical method. BIONETIC at \$4.25 per pound, or case of 12 one pound containers \$48.00, 25 pound drum \$3.25 per pound.
Eliminates odors.
Cleans tile fields, prevents plugging.
Cleans grease traps.
Harmless to humans and plumbing.
Some Dealer and Distributor Franchises open.
Advisory Service, write us.

P. O. Box 6724, Dept. CPM RELIANCE CHEMICALS CORPORATION Houston 5, Texas

APPLEY BLOCK MACHINE (COMPLETE WITH)

25 metal racks.
1400 (8x8x16) Steel Pallets.
94 Aluminum Pallets.
Double Bull Nose Sash Attachment.
100 Double Bull nose sash Pallets.
Bull Nose Attachment.
300 Bull Nose Pallets.
315 (8x12x16) Foundation Pallets.
Package Price \$2500—used, but good condition.

Interested in purchasing used 4 inch Bell-type Concrete Tile Machine.

DALMO CEMENT PRODUCTS CO.
FAIRBURY, NEBR.

FOR SALE

Fleming 180 with Brick, 4" and 2—8" Mold Boxes. Complete with all attachments and 8" & 12" Lintel attachments.

1200—Good 2" Wood Pallets

25—Steel Racks

16—Ft. Dunn Skip & Mixer

All equipment can be seen in operation any day. Will sell complete or machine and attachments less mixer. Immediate possession; have larger equipment installed.

TORRINGTON CEMENT PRODUCTS CO.
North of High School, Torrington, Wyoming

BLOCK PLANT FOR SALE

Complete plant; Multiplex 2 block plain pallet automatic with offbearer. 4-6-8 and 12 inch moulds with 8 in. specials, 2—12 ft. and 1—28 cu. ft. mixers, Air compressor for yard unloader, 5 acres gravel, slack lime, elevator, vibrating screening, 28 yd. hoppers, batching, 60x80 building, steam curing, also cesspool equipment. Beautiful growing resort area. \$3750.00 down to capable purchaser; bal. 5 year terms, 5% int.

ALEXANDRIA CONCRETE PRODUCTS
Alexandria, Minnesota

TRUCK MIXERS

2—Jaeger 4½ yd. late type high dump with sealed end loaders, and full water tanks, mounted on White 2264 dual tandem trucks. Good condition, ready to operate. Price per unit, including truck and mixer....\$6500.00

R. S. ARMSTRONG & BROS. CO.
676 Marietta Street, N.W., Atlanta, Georgia

UNBREAKABLE

PALLET RINGS

Write for full information
TEXAS FOUNDRIES
LUFKIN, TEXAS

CONCRETE BRICK COLORS CEMENT COLORS MORTAR COLORS

made by
BLUE RIDGE TALC CO., INC.
Henry, Virginia

FOR SALE

Joltcrete & Equipment

1—No. 9 Joltcrete, 45% void pallets, racks, turntables, and mold boxes for the manufacture of 4", 6", 8", 12" concrete and cinder block. This equipment is in excellent condition and can be seen in operation. Daily average production per 8 hour shift in 8" equivalents

Concrete units4320
Cinder units4760

Box M-3, CONCRETE PRODUCTS
309 W. Jackson Blvd., Chicago 6, Ill.

GOOD WILL BUILDERS

For the block manufacturer. Help your contractors and bricklayers get quicker, easier and straighter masonry construction with U.B. tools that carry YOUR advertising. U.B. Corner ties, Linestretchers, Line Pins and Twigs. We also wholesale a full line of tools for the block-layer. Write for catalog and prices.

UNITED BUILDERS
1822 Lindberg Drive
Muskegon, Michigan

FOR SALE

6—5 HP 3 ph 220 volt 1600 RPM Stearns Brake Head Motors\$160.00 ea.
2—5 HP 3 ph 220 volt 1735 RPM Squirrel cage\$75.00 ea.
2—1.3 HP 3 ph 220 volt 1725 RPM Delco\$25.00 ea.
4—¾ HP 1 ph 220 volt CO speed 90-144\$25.00 ea.
2—10/5 HP 3 ph 220 volt 3500/1750 RPM with special brakes (new) star.\$300.00 ea.
2—Gear Reducers 12.5 to 1 for 1/3 HP motors\$20.00 ea.
4—Niagara water meter ¾" 10 gallon\$20.00 ea.

F.O.B. Rochester, New York. All equipment used, in good condition.
DOMINE BUILDERS SUPPLY CORP.
155 Gould St., Rochester 10, N. Y.

STOP that WATER

With FORMULA NO. 648
A clear liquid—7 different resins in a solvent which penetrates 1" or more into concrete, concrete blocks, stucco, seals, holds 1250 psi water pressure. Applies quickly—no mixing—no furring—no moul-branes—no cleanup. Use on form—wood or concrete.
HAYNES PRODUCTS CO., OMAHA 3, NEBR.

LORAIN L-40

Good Shape; D-4600 Cat. diesel motor, top shape; 55' Boom, \$6250.00. Blaw-Knox ¾ yd. clam \$750.

LEFTWICH BLDG. MATERIAL CO.
Columbia, Tennessee Phone 1561

FOR SALE

Dunbrik Brick Machines, pallets, welded racks, extra parts, good condition, extremely low prices. Inquire

W. F. COLE
3557 Sholmire Ave.
Philadelphia 36, Pa.

USED EQUIPMENT FOR SALE

- 1—Multico No. 2 Blockmaster, including Power-Pak.
- 1—Multico No. 2½ Blockmaster, including Power-Pak.
- 1—Special Multico No. 2 Concrete Brick Machine and Equipment.
- 1—No. 1 Rockcrete Block Machine, Mold Boxes, Pallets, etc.
- 1—No. 9 Jolterrete Block Machine, Mold Boxes and Pallets.
- 1—Model "ABA" Standard Tamper with Equipment.
- 1—Model "OCA" Multiplex Chimney Machine complete.
- 1—Multiplex Manhole Block Machine, hand operated.

**MULTIPLEX MACHY. CO.,
DIV. OF MULTIPAK, INC.
ELMORE, OHIO**

WILL RENT AT BARGAIN RATES

Brand new 5½ c.y.
Rex Hi-Discharge Mixers (1952)
on G.M.C. trucks.

Deliver to any location.

Write or wire Box 295, Evansville, Ind.

FOR SALE

One Hydrokorpak Block Machine with 1600 pallets. Semi-automatic hydraulic operation. Making 1600 concrete blocks every day. Original cost of machine and pallets approximately \$4800. Will sacrifice for \$900. Must make room immediately for larger equipment.

**BAILEY DUNBRIK COMPANY
St. Augustine, Florida**

FOR SALE

- (1) Concrete pipe machine, 12"-60".
- (2) Mixer & Skip.

First class condition.

**BOX M-6 CONCRETE PRODUCTS
309 W. Jackson, Chicago 6**

LOWER COST

PACKER-HEAD WINGS

Proved to last as long or longer — yet cost considerably less. Write for prices.

**TEXAS FOUNDRIES
LUFKIN, TEXAS**

FOR SALE

Carpenter Forms for Making Pre-cast Concrete Septic Tanks.

- 1—750 Outside Form.
- 1—C1000 Section.
- 2—750 Inside Forms.
- 2—Core Molds.
- 1—Manhole Mold.
- 1—Lifting Tongs for setting tanks.

Used 1 year, in good condition.

Write to **CORTLAND SALES & PRODUCTS, Inc.**
Cortland, Ohio Phone 423

- 1.) One Go Corp Junior single block machine, with eight inch mold box.
- 2.) 1200 preset steel pallets.
- 3.) Pallet dunker.
- 4.) Racks for 1000 (one thousand) blocks.
- 5.) One hand lift truck.
- 6.) Two bag horizontal mixer, with skip hoist.

All the above machinery is in "good" condition; the price is \$6000.00, (six thousand dollars), **BOX M-4, CONCRETE PRODUCTS, 309 W. Jackson Blvd., Chicago 6, Illinois.**

**KEEP ABREAST
WITH INDUSTRY TRENDS
THROUGH
ROCK PRODUCTS**

FOR SALE OR LEASE

Excellent deposits of Pumice. More than 15,000,000 cubic yards of high grade pumice and pumicite suitable for diversified building material, lightweight aggregate, paint manufacture, scouring and abrasive compounds. Two miles of paved highway. Low freight rate. For sale or lease by owner.

A. C. HAIGLER, 1211 N. 1st St., Phoenix, Ariz.

FOR SALE

Besser "Victory" Vibrapac.
Excellent condition with 4", 8", 12" and Brick Attachments.

Air Offbearing Hoist.

2200 Plain Pallets, 13 x 18½".

18 Cubic Foot Stenns Mixer.

54 Steel Racks on wheels.

2 Transfer Cars.

1200 Ft. Narrow Gauge Rail.

Equipment in excellent condition, will be in operation until middle of January, being replaced by larger machine. May be inspected at any time.

Write for further details and price.

**PARK AVE. CEMENT BLOCK CO., INC.
1350 Park Ave., Cranston 9, Rhode Island**

FOR SALE

4—Smith 4½ yd. Mixers, excellent shape, serial numbers in \$600 series.

3—Blaw-Knox 3 yd. Mixers, excellent condition, 1950 model.

2—Smith 3 yd. High-Discharge Mixers, serial numbers in 5700 series.

1—Willard 3 yd., 1952 model.

All of the above is in good operating condition, ready to go and reasonably priced.

2—Smith 2 yd. Mixers, old but serviceable. Also, several serviceable 2 and 3 yd. Mixers, priced so as to make good standby units.

1—Inaley Shovel, 1952 Model, used less than 2 months, \$12,000.

All of the above located at:

**FUNKHOUSER MACHINERY CO.
2425 Jefferson St., Kansas City 8, Mo.
Telephone: HARRISON 4365**

FOR SALE

Stearns 28 cu. ft. Mixer & Motor.

FOND DU LAC CONCRETE PRODUCTS

**183 W. Follett Street
Fond du Lac, Wisconsin**

VOLCOLITE

Natural Pozzolan
Practically Identical To
The Original Italian
POZZOLANA
Partial Cement Replacement
Better Concrete at Lower Cost
Uniform — Minus 325 — Light Color

**PUMICE INCORPORATED
P. O. Box 517, Idaho Falls, Idaho**

- 1—Dunbrik Machine with electric motor.
- 1—Dunbrik Attachment for making Double & Triple brick.
- 360 Steel Pallets (3 brick type).
- 1 Dunn 16 cu. ft. Mixer with electric Motor and skip hoist.
- 2 Lift Jacks with 10" Ball Bearing cushioned Rubber Tired wheels.
- 14 Dunbrik all steel Transport Trucks with 10" Ball Bearing cushioned Rubber Tired wheels.
- 1 Industrial Colcrete mixing & spraying machine.
- 10,000 brick per day.

**KING BRICK COMPANY
P. O. Box 285, Portageville, Mo.**

CEMENT COLORS

Write for free samples and prices of "LAMSCO" CEMENT COLORS produced in 50 attractive shades. Packed in bulk and in 1 lb. and 5 lb. packages.

manufactured by

**LANDERS-SEGAL COLOR CO.
73 Delevan St. Brooklyn 31, N. Y.**

FOR SALE

GoCorp Senior block machine complete with 50 cu. ft. mixer, off-bearer, and 4", 6", 8" and 12" molds for 18" block. This machine is presently operating, is equipped with height and density controls. Priced for quick sale. **BOX L-79, CONCRETE PRODUCTS, 309 W. Jackson Blvd., Chicago 6, Ill.**

FOR SALE

1—MARVEL DRAIN TILE MACHINE equipped to make 4" and 6" tile. Used only 1 week.
- 1—USED VAN-U-MATIC 3-block plain pallet concrete block machine, 8" and 12" mold boxes. Reason for selling: Installing larger equipment.

**ROBERT BURKHAM & CO.
825 Marshall Avenue
Valley Park, St. Louis County, Mo.**

**PLANT
SUPERINTENDENT
WANTED**

For Concrete Block Plant located at Miami, Florida. An opportunity for an experienced and well qualified man to take over the management of three block plants. Prefer a man with engineering background. Excellent salary and bonus. Replies confidential. Give complete resume of past experience.

MAULE INDUSTRIES, INC.

**1760 Purdy Avenue
Miami Beach, Florida**

WANTED

TO BUY

Modern Used Concrete Pipe Equipment.

TO EMPLOY

Concrete Pipe Superintendent.
**Williams Construction Company
Inc.**

Box 145, Baltimore 20, Maryland

WANTED

Used Besser Brick Attachment for Modular Brick

Advise age, condition, price.

**Box M-5, CONCRETE PRODUCTS
309 W. Jackson Boulevard
Chicago 6, Illinois**

Wanted to Buy

One or two thousand concrete form clamps for 8" tie beams.

Howard & Co.

728 N. W. 55th St., Miami, Florida

WANTED

Jackson & Church Brick Machines, six or twelve pocket. Prices must be low. Contact:

W. F. COLE

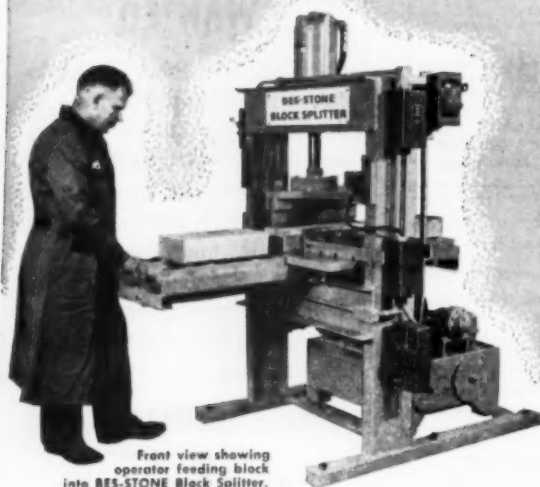
**3557 Shelmire Ave.
Philadelphia 36, Pa.**

OPPORTUNITY

For man capable of handling complete plant superintendency of established block and ready mix plant. Capacity volume. Modern, new equipment manufacturing lightweight and concrete units. Experience in machinery installation helpful. State age, experience, references, availability, salary.

Reply **BOX M-7, CONCRETE PRODUCTS, 309 W. Jackson Boulevard, Chicago 6, Illinois**

BES-STONE BLOCK SPLITTER



Front view showing operator feeding block into BES-STONE Block Splitter.

- Operates Automatically
- Produces 960 Split Block Per Hour
- Easily Adjusted for Various Heights
- Splits in a Straight Line — No Culls
- Has a Powerful Hydraulic Action
- Combines Quiet Operation with Safety

Here is another Besser machine — the BES-STONE Block Splitter — designed primarily for the Concrete Products Industry. The machine splits block with speed and precision, in a variety of modular sizes. It's fully automatic. The block is placed under the knife automatically . . . the blade descends with a smooth, hydraulic action . . . and the split block is ejected by the incoming block. The operator is always at a safe distance. The BES-STONE Block Splitter enables plant operators to offer additional lines and affords new profit possibilities. Write for Bulletin No. 95A.



BES-STONE in Modular Sizes

BES-STONE, the product of the BES-STONE Block Splitter, is a new masonry unit with a split-stone appearance, made in many sizes and in a series of attractive, permanent colors. You'll find it complements, and greatly increases your sales of standard stripper block.

BESSER

Complete Equipment for Concrete Products Plants
BESSER MFG. CO., ALPENA, MICH., U. S. A.

INDEX TO ADVERTISERS IN THE CONCRETE PRODUCTS SECTION OF ROCK PRODUCTS

SEE INDEX OF ROCK PRODUCTS SECTION
ADVERTISERS ON PAGES 305, 306

Alexandria Concrete Products	254
Armstrong, R. S., & Bros. Co.	254
Bailey Dunbrik Company	255
Baughman Manufacturing Co., Inc.	248
Bergen Machine & Tool Co., Inc.	237, 252
Besser Manufacturing Co.	204, 213, 214, 248, 256
Blue Ridge Talc Co., Inc.	254
Builders Equipment Company	246
Burkham, Robert, & Co.	255
Burmeister, L., Co.	211
Butler Bin Company	212
Chain Belt Co.	235
Clapp, Riley & Hall Co.	254
Cleveland Vibrator Company	244
Clipper Manufacturing Co.	239
Cole, W. F.	254, 255
Columbia Machine Works	207, 257
Columbian Carbon Company	236
Concrete Equipment Company	250
Concrete Transport Mixer Co.	205
Cortland Sales & Products, Inc.	255
Dalmo Cement Products Co.	254
Des Plaines Concrete Machinery Co.	248
Domine Builders Supply Corp.	254
Dur-O-wal Products, Inc.	242
Erickson Power Lift Trucks, Inc.	246
Fond du Lac Concrete Products	255
Framingham Sand & Gravel Co., Inc.	253
Funkhouser Machinery Co.	255
Gerlinger Carrier Co.	245
Haigler, A. C.	255
Haynes Products Co.	254
Howard & Co.	255
Johnson, C. S., Co.	208, 209
Jones, J. A., Concrete Machinery	236
Kent Machine Co.	241
King Brick Company	255
Klingelhofer Machine Tool Co.	247
Koehring Company	208, 209
Landers-Segal Color Co.	255
Leftwich Bldg. Material Co.	254
Mapico Color Division	236
Maule Industries, Inc.	255
Moore Dry Kiln Company	250
Multiplex Machy. Co. Div. of Multipak, Inc.	255
National Conveyor & Supply Co.	240
Oronite Chemical Company	206
Oswalt Engineering Service Corp.	240
Pak-Crete Sales	234
Park Ave. Cement Block Co., Inc.	255
Praschak Machine Co.	250
Pumice Incorporated	252, 255
Quinn Wire & Iron Works	252
Reading, Eugene P., Inc.	254
Reliance Chemicals Corporation	254
Riddell, W. A., Corp.	243
Smith, T. L., Company	210
South River Sand Co.	252
Star Expansion Products Co.	252
Stearns Manufacturing Company, Inc.	258
Texas Foundries	254, 255
Torrington Cement Products Co.	254
Townmotor Corporation	249
Truax Machine & Tool Company	250
Unit Crane & Shovel Corporation	251
United Builders	254
United States Steel Corp.	202
Universal Atlas Cement Company	202
Willard Concrete Machinery Sales Co.	242
Williams, C. K., & Co.	238
Williams Construction Company Inc.	255
Williams, Roger F.	242

NOW!

COLUMBIA'S

Newest

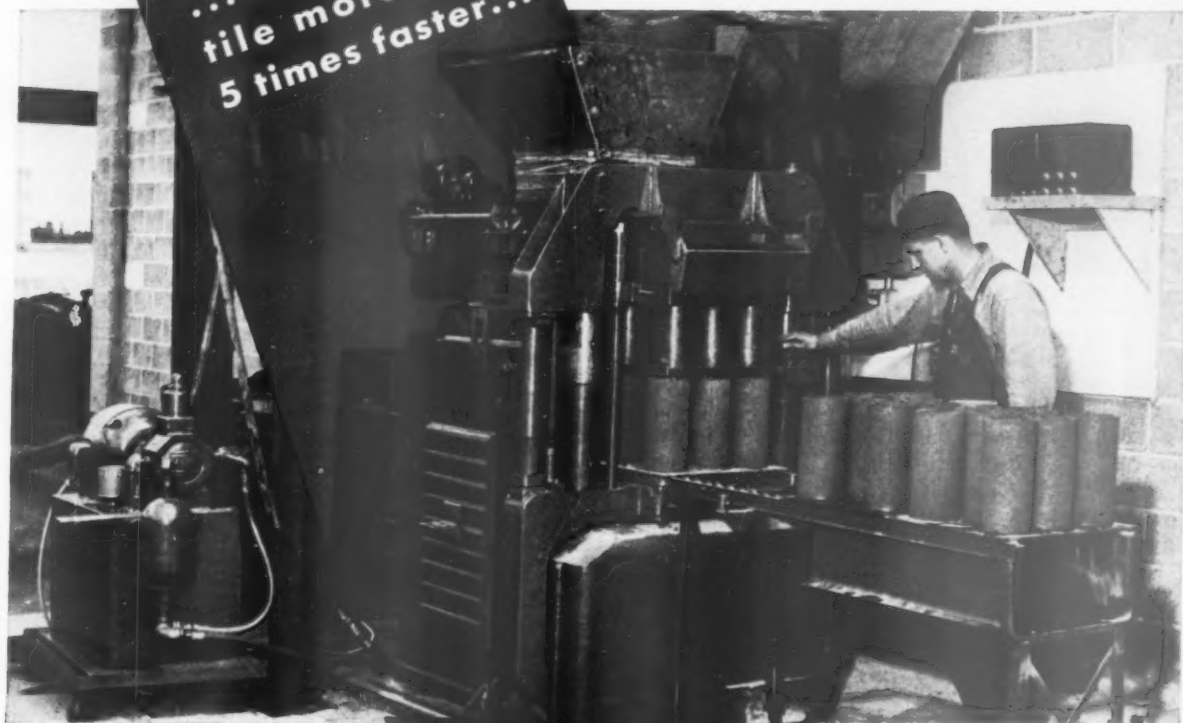
PROFIT MAKER

...makes drain
tile more than
5 times faster...

Columbia's 12-HIGH COMBINATION

DRAIN TILE AND BLOCK MACHINE

a precision - built, fully automatic
machine that quickly converts to
tile or block production.



ANOTHER

Columbia FIRST

FIRST to give you drain tile and concrete block production in one machine . . . FIRST to answer the need for fast drain tile production . . . FIRST to meet the demand of the expanding drain tile market! Here is the machine that leads the field in versatile production of concrete products!

WRITE TODAY

...for complete information. See how you can best profits, give your plant a competitive advantage, unheard of before in the block and tile industry, with the installation of Columbia's combination drain tile-concrete block machine!

Available on lease-purchase or outright sale.



District Offices: Wisconsin, Ohio, South Carolina, Mississippi, Florida, New Jersey, Virginia and California.

Columbia MACHINE

Home Office: 107 S. GRAND, VANCOUVER, WASHINGTON
Factory Branch and Warehouse at Mukwanago, Wisconsin

Columbia MACHINE

107 S. Grand • Vancouver, Washington

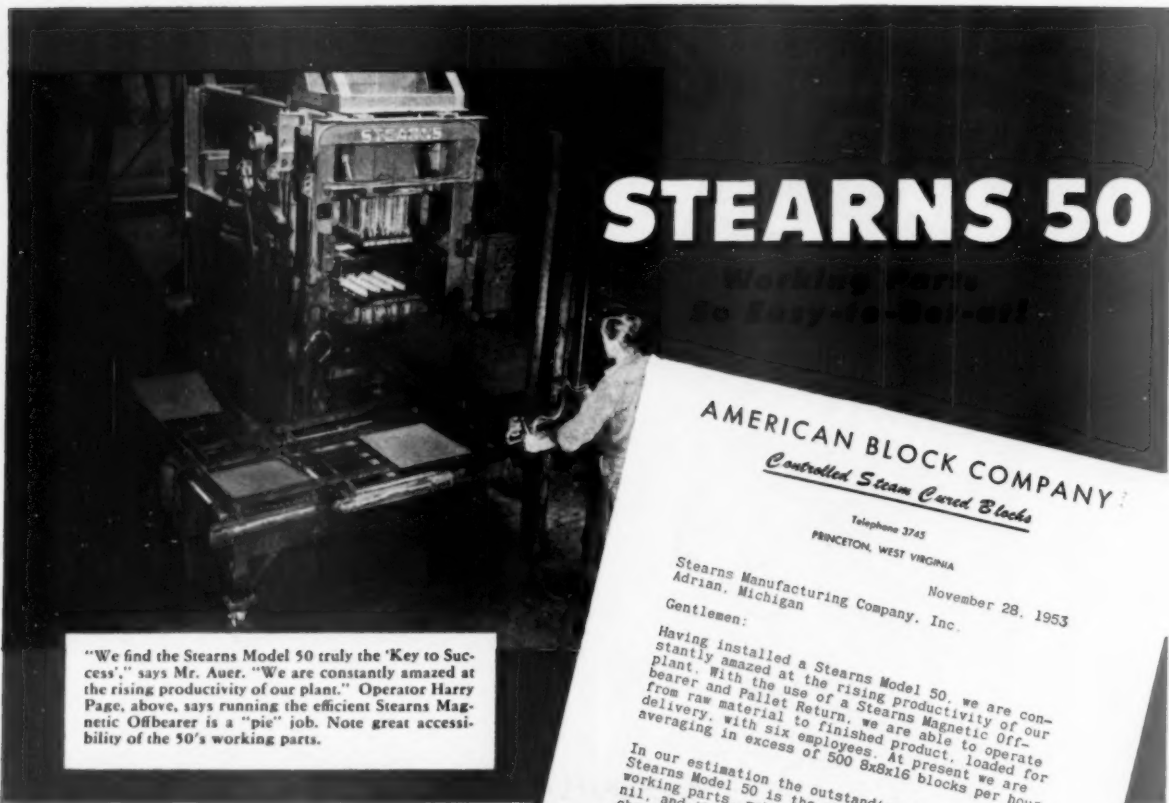
Gentlemen: Please rush me complete information on the new Columbia combination 12-high, tile-block machine.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____





"We find the Stearns Model 50 truly the 'Key to Success,'" says Mr. Auer. "We are constantly amazed at the rising productivity of our plant." Operator Harry Page, above, says running the efficient Stearns Magnetic Offbearer is a "pie" job. Note great accessibility of the 50's working parts.

"We can't afford not to own Stearns Machinery," says Joseph C. Auer, sales manager and joint owner (with his father, L. M. Auer) of the new concrete block plant in Princeton, W. Va., which started production last May with a Stearns 50,* and, up to December 1, had turned out in excess of 3/4 million perfect units. The plant is completely Stearns—Mixer, Skip, Offbearer, Pallet Return, etc.

Just a few miles away in Virginia is American Cinder Block, the parent company. Combined yearly production of the two Stearns plants will approximate 2 1/2 million 8" equivalents.

*Stearns 50 Now Available at No Extra Cost for Use with Pallets 20 Inches Long for Even Greater Production!

STEARNS 50

AMERICAN BLOCK COMPANY
Controlled Steam Cured Blocks

Telephone 3745
PRINCETON, WEST VIRGINIA

Stearns Manufacturing Company, Inc.
Adrian, Michigan
November 28, 1953

Gentlemen:

Having installed a Stearns Model 50, we are constantly amazed at the rising productivity of our plant. With the use of a Stearns Magnetic Offbearer and Pallet Return, we are able to operate from raw material to finished product, loaded for delivery, with six employees. At present we are averaging in excess of 500 8x8x16 blocks per hour.

In our estimation the outstanding feature of the Stearns Model 50 is the easy accessibility of working parts, making adjustments easy, downtime nil, and the employment of a highly trained mechanic unnecessary. The efficiency of the magnetic offbearer and the dependability of the pallet return are two other outstanding features in which Stearns engineers have excelled.

We find the Stearns Model 50 truly the "Key to Success". As is so aptly stated in your advertisements—"Afford it? . . . We can't afford NOT to own Stearns Machinery".

Sincerely yours,

AMERICAN BLOCK COMPANY
Joseph C. Auer
JOSEPH C. AUER

MANUFACTURES OF ALL SIZES AND SHAPES



Mr. Auer, left, and Basil R. Legg, his Princeton plant manager, never have to worry about the quality of their Stearns 50 units. They all pass with flying colors—block after block after block! Mr. Auer worked summers at the parent plant, the American Cinder Block Company, Rich Creek, Va., (which he also owns with his father) while attending Washington and Lee University. The plant employs a Stearns No. 9 Joltcrete. After college, he was sales representative for the Lone Star Cement Corp., Virginia Division, until his present position. Mr. Legg was assistant plant manager at the parent company until called to his present duties.

STEARNS
MANUFACTURING COMPANY - INC.
ADRIAN • MICHIGAN



BE SURE TO VISIT US
at the
NATIONAL CONCRETE
MASONRY ASSOCIATION
CONVENTION
FEB. 7-11
WASHINGTON, D. C.
REMEMBER:
STEARNS SUITE
SHOREHAM HOTEL



New 1954 Chevrolet Trucks

New Power! New Economy! New Features you want!

New Chevrolet trucks for '54 are here to do your hauling or delivery job faster, more efficiently and more economically.

To begin with, they bring you thrifty new power in *all* models. You save time on every trip with extra reserves of high-compression horsepower under the hood—and you enjoy greatly increased operating economy as well.

In addition, these great new Chevrolet trucks offer new and even greater dependability with increased ruggedness throughout the chassis. You'll find heavier axle shafts in 2-ton models . . . bigger, more durable clutches in light- and heavy-duty models . . . more rigid frames in *all* models. Pickup and stake bodies are plenty rugged, too—and they're roomier for '54!

But that's only the beginning! You enjoy new cab comfort, convenience and safety. Instruments are easier to read . . . controls are easier to reach. A new one-piece curved windshield gives you greater visibility. The new Ride Control Seat* lets you drive in relaxed comfort hour after hour, over all kinds of roads. Seat cushion and back move as a unit to "float" you over bumps without back-rubbing.

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

DUAL-SHOE PARKING BRAKE—greater holding ability on heavy-duty models. **NEW RIDE CONTROL SEAT***—eliminates back-rubbing. **NEW, LARGER UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES**—give increased load space. **COMFORTMASTER CAB**—offers greater comfort, convenience and safety. **PANORAMIC WINDSHIELD**—for increased driver vision. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—easier, safer handling. **ADVANCE-DESIGN STYLING**—rugged, handsome appearance. *Optional at extra cost. Ride Control Seat is available on all cab models. "Jobmaster 261" engine on 2-ton models, truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.

MORE CHEVROLET TRUCKS IN USE THAN ANY OTHER MAKE!

In another great advance, new Chevrolet trucks offer you the last word in no-shift driving ease and convenience. With proved truck Hydra-Matic transmission* you can drive all day and make door-to-door deliveries without shifting or clutching. Fact is, there *is* no clutch!

These are some of the many big new benefits awaiting you in the new Chevrolet trucks for '54. Why not plan to get the whole money-saving story at your Chevrolet dealer's soon! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

Most trustworthy trucks on any job!



ADVANCE-DESIGN TRUCKS

ROSS FEEDERS

FOR HANDLING ROCK, ORES, ETC.

**ROSS
CHAIN
FEEDERS**



**ROSS
DROP-BAR
GRIZZLY
FEEDERS**

Ross Drop-Bar Grizzly Feeder to Handle
Rock to a 42" x 60" Jaw Crusher

ROSS SCREEN & FEEDER CO.
19 Rector Street
New York 6, N. Y., U. S. A.

ROSS ENGINEERS, LTD.
11 Walpole Road
Surrey, Surrey, England

CANADIAN LICENSEE: **E. LONG LTD.**, ORILLIA, ONTARIO

2 Liners Rebuilt for Half the Cost of New Liners with **MANGA-TONE N.M. and RESISTO-LOY**

This photo illustrates another successful rebuilding job.

These two Gyratory Liners were rebuilt with **MANGA-TONE N.M.** and then sealed with **RESISTO-LOY**. The entire job was done for barely **HALF THE COST** of two new liners.

Furthermore, the rebuilt and hard-surfaced liners can be depended on to last **AT LEAST 50% LONGER** than new castings.

This is another example of the tremendous savings possible with **MANGA-TONE N.M.** and **RESISTO-LOY**.



Call our field man. Let him show you without obligation how to cut costs on *your* equipment.

RESISTO-LOY CO. **Manufacturers**
GRAND RAPIDS 7, MICHIGAN

PLAN TO ATTEND

38th ANNUAL CONVENTION AND EXPOSITION OF THE NATIONAL SAND AND GRAVEL ASSOCIATION

24th ANNUAL CONVENTION AND EXPOSITION OF THE NATIONAL READY MIXED CONCRETE ASSOCIATION

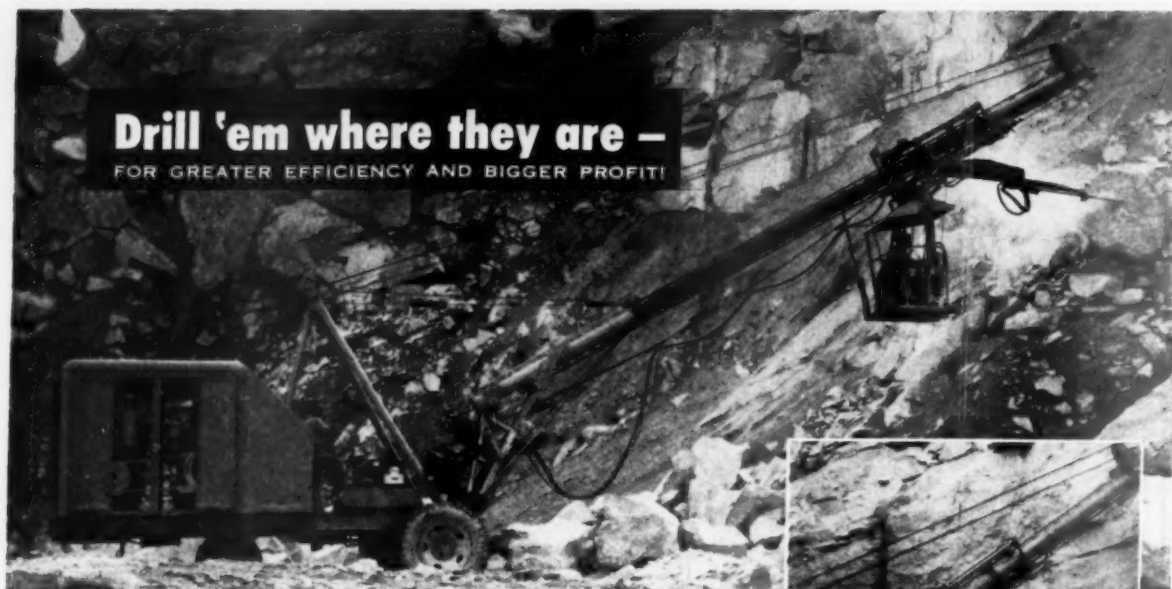
All producers of sand and gravel and ready mixed concrete, whether or not affiliated with the Associations, are cordially invited to be represented at the 38th annual convention and exposition of the National Sand and Gravel Association and the 24th annual convention and exposition of the National Ready Mixed Concrete Association, to be held at the Conrad Hilton Hotel, Chicago, Illinois, from February 15 to 19, 1954.

These two national organizations will jointly sponsor an exposition of machinery and supplies used in the distribution and consumption of sand and gravel and ready mixed concrete. You are invited to attend the convention and to see the only display anywhere in this country of machinery designed for the use of our two industries. There is no registration fee for producers.

The business program is designed to facilitate informal discussion and decision on the many problems which the two industries face. Matters of importance to all producers will be discussed and policies will be formulated which will have a vital influence on the operations of our two industries in the future. You owe it to your company to take part in these momentous events. Speakers will be drawn primarily from men actively engaged in the two businesses, and there will be emphasis on audience participation and round-table discussion.

The leading manufacturers supplying the requirements of sand and gravel and ready mixed concrete producers will have space at the joint show. They will have colorful, interesting and attractive displays and there will be men in their booths who can talk to you about the practical every-day problems of our two industries. The Conrad Hilton, with the largest hotel exhibit area in the world, has recently expanded its exhibit space. Demands from manufacturers for space have already overtaxed even these enlarged facilities. This will be the largest and best show in the history of our two industries.

**MAKE YOUR RESERVATIONS NOW FOR THE RECORD-BREAKING
SAND AND GRAVEL - READY MIXED CONCRETE SHOW**



Drill 'em where they are —

FOR GREATER EFFICIENCY AND BIGGER PROFITS!

Replaces 6 to 8 jackhammer men and their equipment!

Travel Drill easily drills boulders that are inaccessible by any other drilling method, thus it greatly increases shovel loading efficiency and economy. Get the facts now!

The **TRAVEL DRILL** Co., Inc. P. O. Box 1124
Raleigh, N. C.

WRITE FOR FULL DESCRIPTION AND
AUTHENTICATED USERS' RECORDS!

**NO RAMMING OR JAMMING! NO SPINNING OF WHEELS
WHEN LOADING BULKY OR "PACKED" MATERIALS**

LESSMANN
LOADALL

**DIGS IN WHILE
STANDING STILL!**

A HIGHLY MANEUVERABLE POWER SHOVEL

Lessmann LOADALL scoops up big loads of the most heavily compacted soils, cinders, aggregate, etc. . . . does it in 5 seconds while standing still! Extra hydraulic cylinders supply Hydraulic Power Crowd. This means *loading* with hydraulics which eliminates ramming and spinning of wheels . . . *minimizes repairs, reduces maintenance!* Dozer blade is easily attached for grading, back-filling. Crane-hook, lift forks, snow and trash buckets are also available.

9 FT. DUMPING CLEARANCE

LOADALL has clearance for the highest trucks, bins and mixing hoppers. It loads or unloads at any height from 12" below wheel level to 108" above. Wheelbase of 73" and 12' turning radius make it highly maneuverable.

52" REACH

Here's a full 4'4" reach at maximum clearance! LOADALL carries load close but quickly boosts it 'way out ahead' for easier loading . . . another advantage of Hydraulic Power Crowd.

*Check
these Features!*

✓ **STANDARDIZED PARTS.** Ford, Timken, Vickers, Bendix, etc., assure highest quality components and low-cost servicing.

✓ **SAFETY.** Operator has unrestricted visibility and is protected from loader arms.

✓ **EASY HANDLING.** Full reverse shifting gives LOADALL four speeds forward and four reverse. Three simple, conveniently located hydraulic controls assure efficiency.

✓ **LOW COST.** You save on first cost, operating costs and maintenance costs with a LOADALL.

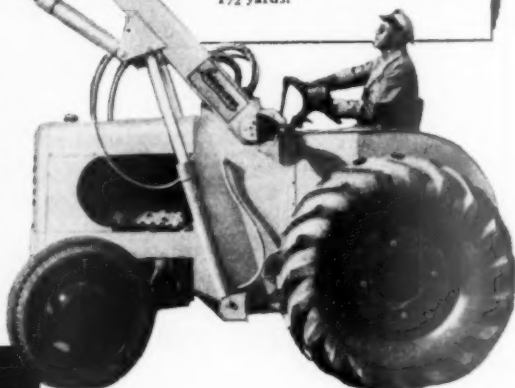
✓ **LOADALL BUCKETS.** Available with capacities of $\frac{3}{4}$, 1, 1 $\frac{1}{4}$ and 1 $\frac{1}{2}$ yards.



LESSMANN MANUFACTURING COMPANY

Affiliate of United Steel Barrel Co. Philadelphia—Wilmington, Del.

2010 Easton Blvd., Des Moines 4, Iowa



Write for Complete Information TODAY!

this costs money

Underloaded conveyors cost you money because they are not utilized to capacity . . . you're not getting full return on your investment . . . subsequent operations are starved for materials.



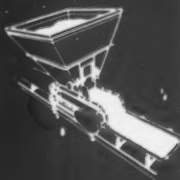
this wastes money

Overloaded conveyors cause unnecessary cleanup . . . thus waste labor. Subsequent operations are periodically flooded with more material than they can handle.



this saves money!

A properly loaded conveyor, with flow to it regulated by a Rex® Feeder, is economical and efficient . . . promotes smoothness and economy throughout entire processing operation.



YOU save time, material, money with apron feeders!

Uniform, Regulated Flow . . . that's important when you're concerned with moving bulk materials from bin or hopper to belt conveyor or crusher. With Rex Feeders you're assured a metered, uniform rate of transfer, regardless of variation in size of material handled. Your belt conveyor or crusher will receive a steady flow of material to assure smooth, efficient, low-cost operation.

Ask your Rex Field Sales Engineer to give you complete information on how you can save money with Rex Feeders. Call the office nearest you, or write to Chain Belt Company, 4649 W. Greenfield Ave., Milwaukee 1, Wis.

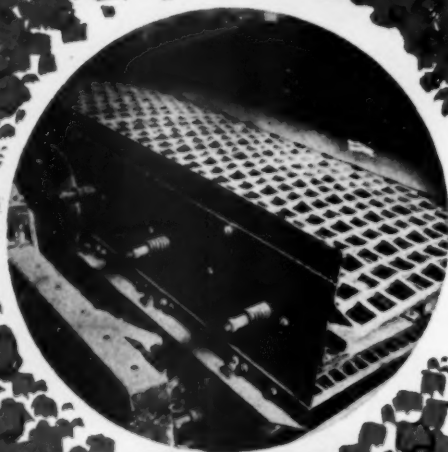


Chain Belt COMPANY OF MILWAUKEE

Atlanta • Baltimore • Birmingham • Boston • Buffalo • Chicago • Cincinnati
Cleveland • Dallas • Denver • Detroit • El Paso • Houston • Indianapolis • Jackson-
ville • Kansas City • Los Angeles • Louisville • Midland, Texas • Milwaukee
Minneapolis • New York • Philadelphia • Pittsburgh • Portland, Oregon • West Spring-
field, Mass. • St. Louis • Salt Lake City • San Francisco • Seattle • Tulsa • Worcester

EXPORT OFFICE: 4800 W. Mitchell St., Milwaukee 1; New York office: 19 Rector Street
Distributors located in principal cities in the United States and abroad

Not a clog in a carload...



That's right . . . the full clearance of Hendrick Perforated Metal assures the screening of large quantities of materials without time-wasting blinding. Hendrick Perforated metal maintains uniformity of mesh through a sustained life of service. Decks can be changed rapidly saving valuable time and effort. Supplied either flat or corrugated, Hendrick Perforated Metal is available in any desired shape and size of openings in high carbon, stainless steels and in other commercially rolled metals.

Write for more complete information — or phone Hendrick direct!

Hendrick

MANUFACTURING COMPANY

47 DUNDAFF STREET, CARBONDALE, PA.

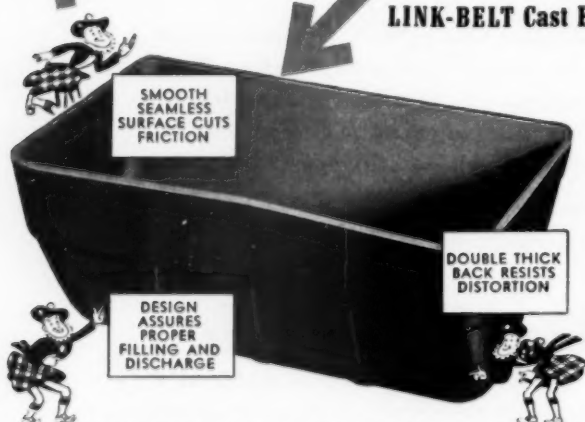
Sales Offices in Principal Cities



Perforated Metals • Perforated Metal Screens • Wedge-Slot Screens • Architectural Grilles • Mitco Open Steel Flooring • Shur-Site Treads • Armorgrids

Here are buckets tailored for rough, tough elevator service

LINK-BELT Cast Buckets pay dividends in longer life, cleaner handling



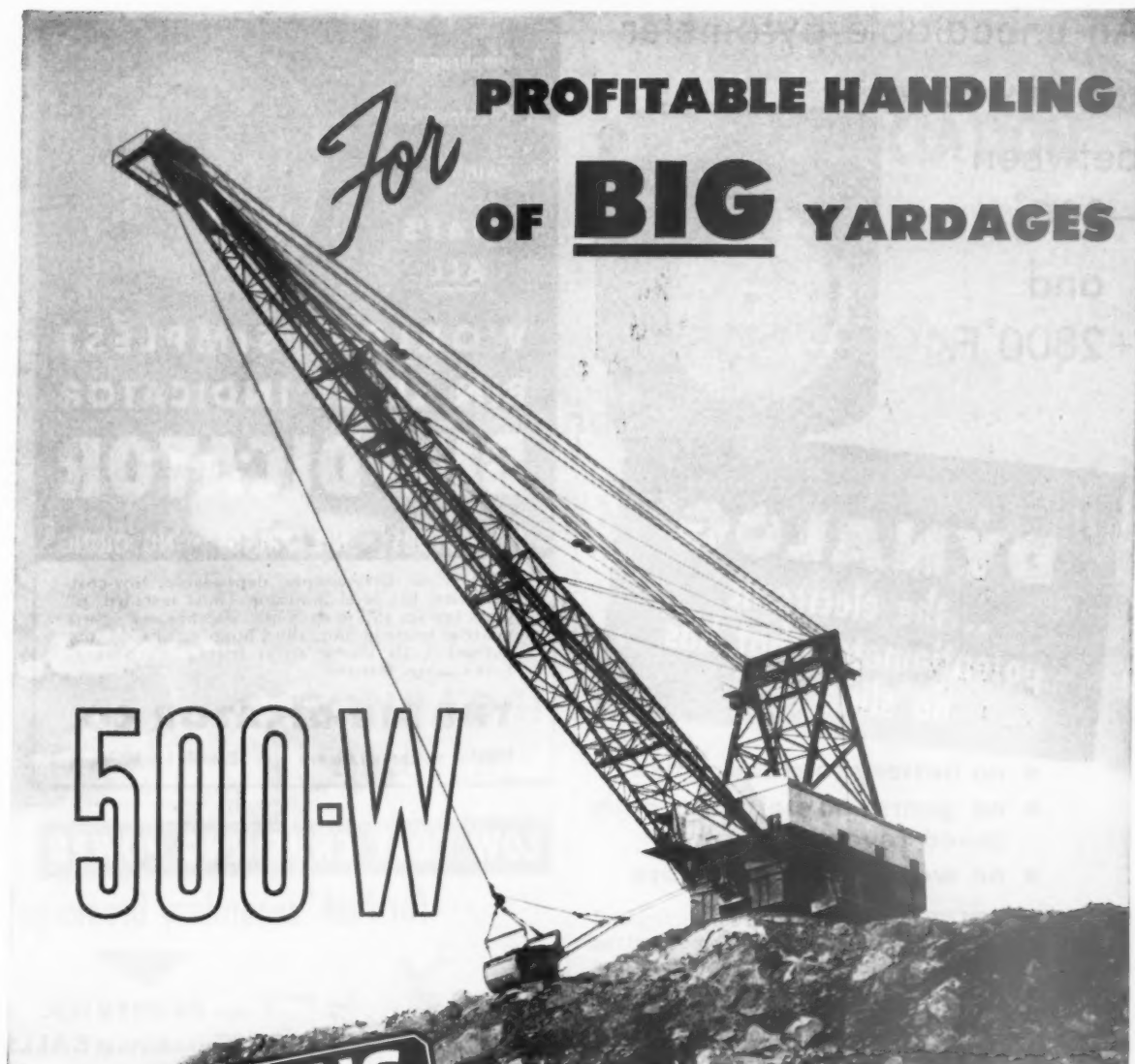
YES, Link-Belt Cast Buckets are durable. Made of the highest grade malleable iron or Promal (the stronger, longer wearing metal)—they resist abrasion and corrosion . . . stand up better under day-in, day-out usage. Improved casting methods assure uniformity. And special construction features help build their reputation for improved performance.

Find out how Link-Belt Cast Buckets can save you money. There are many styles and sizes available for a wide range of applications . . . for either chain or belt mounting. Steel buckets of various designs are also furnished. Call your Link-Belt sales representative or distributor for local stocks and information.

LINK-BELT
CAST ELEVATOR BUCKETS

LINK-BELT COMPANY: Plants: Chicago, Indianapolis, Philadelphia, Colmar, Pa., Atlanta, Houston, Minneapolis, San Francisco, Los Angeles, Seattle, Toronto, Springs (South Africa), Sydney (Australia). Sales Offices, Factory Branch Stores and Distributors in Principal Cities.

13, 218



For

PROFITABLE HANDLING OF **BIG** YARDAGES

500-W

**BUCYRUS
ERIE**

FULLY ELECTRIC dragline with individual hoist and drag motors for positive control, quick change from hoist to drag. No operating clutches or brakes.

TWIN DRAG ropes for stable bucket action and fast filling.

WARD LEONARD VARIABLE VOLTAGE CONTROL for rapid acceleration and deceleration.

BIG CAPACITY, long reach — 8-yd. bucket with 205-ft. boom, 10-yd. bucket with 185-ft. boom, 12-yd. bucket with 165-ft. boom.

FOR SUSTAINED HIGH OUTPUT at proved low cost per yard . . . it will pay you to investigate the Bucyrus-Erie 500-W.

25153

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

An unbeatable pyrometer
for any range
between
-300°
and
+2800°F.



DYNALOG*
...the electronic
potentiometer that has
no slidewire

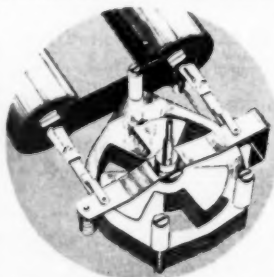
- no battery to standardize
- no gears, no belts, no high-speed reversing motors
- no wear — no dead space

TOPS IN SIMPLICITY, unequalled in sensitivity and speed of response, the Dynalog Potentiometer gives you unerring temperature measurement for any range up to 2800°F. . . with a sustained accuracy of 1/4 of 1% of scale.

Dynalog design eliminates slidewire and other parts that wear and cause dead space...practically eliminates maintenance.

Full scale pen travel in 3 seconds! Controlling models available with all types of Foxboro pneumatic and electric mechanisms.

Multi-Record Dynalog provides color-coded records of up to 6 points at 6 second intervals. For the full story, write for Bulletin 427-1.



No troublesome slidewire here! Instead, just a simple variable capacitor that gives the higher accuracy and friction-free operation of stepless balancing.

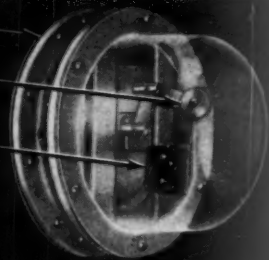
*Reg. U. S. Pat. Off.

THE FOXBORO COMPANY, 301 NORFOLK ST., FOXBORO, MASS., U.S.A.

FOXBORO POTENTIOMETERS

FACTORIES IN THE UNITED STATES, CANADA, AND ENGLAND

1. Diaphragm
2. Counterweight
3. Switch



THAT'S
ALL

WORLD'S SIMPLEST BIN LEVEL INDICATOR BIN-DICATOR

NO MOTORS • NO SPRINGS • NO OILING

This is the first simple, dependable, low-cost automatic bin level indicator. Units installed 20 years ago are still in daily use. Watches and reports material levels in bins, silos, hoppers, chutes, etc.; automatically starts, stops filling machinery. Free catalog. Write—

THE BIN-DICATOR CO.

13946-F Kercheval Avenue • Detroit 15, Michigan

LOW COST CRUSHING POWER

for fast "secondary breakage"



use **FREDERICK**
CAST semi-steel BALLS
with E-Z Swing Steel Eye



Tough and rugged, Frederick Wrecking Balls deliver crushing power where you need it. They're made to stand abuse—to give you long, economical service. Inverted steel eye gives cable protection plus free-swinging action. Special release hooks for free dropping also available. Shipments made promptly from stock of these sizes: 500 lbs., 1000 lbs., 1500 lbs., 2000 lbs., 3300 lbs., 4000 lbs., 5200 lbs., 6500 lbs., 8000 lbs.

Write today for prices and free literature on our new line of Balls and Cable Weights . . . or phone for prompt delivery.

FREDERICK IRON & STEEL, INC.

FREDERICK Since 1890 MARYLAND
CENTRIFUGAL PUMPS • MUNICIPAL & GRAY IRON CASTINGS

NATIONAL CRUSHED STONE ASSOCIATION

37th ANNUAL CONVENTION and BIENNIAL EXPOSITION

CONRAD HILTON HOTEL

Chicago Illinois

FEBRUARY 22, 23, 24, 1954

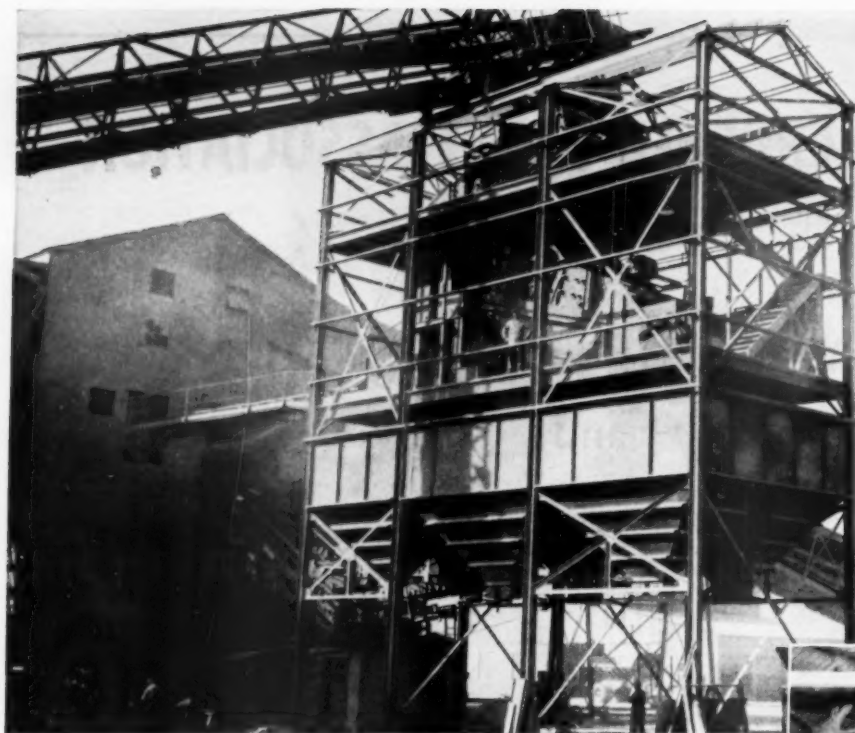
ALL ARE INVITED TO ATTEND

Crushed stone producers, whether or not members of NCSA, and others directly or indirectly interested in the crushed stone industry are invited to attend. Over the years this eagerly awaited event has proved its worth by giving so much for so little in such a short space of time.

FOR SPECIAL RESERVATION CARD WRITE

NATIONAL CRUSHED STONE ASSOCIATION

1415 ELLIOT PLACE, N. W. WASHINGTON 7, D. C.



New Fines Mill at Buffalo Crushed Stone equipped with 4 Double-Deck 4' x 14' Deisters

Four new Type UHS Deister Heavy Duty Vibrating Screens have increased the output of fine sizes ($\frac{1}{2}$ ", $\frac{1}{4}$ ", $\frac{1}{8}$ " and 14 mesh) by 100 to 125 tons per hour at the Bowmansville, New York, plant of the Buffalo Crushed Stone Corporation.

Installed in the new fines mill, these screens have relieved the main screening plant which has improved gradations to meet the New York State specifications for Concrete and Bituminous Material.

Plant Superintendent Paul Leto and Milo Crouse, Manager of Operations, are very proud of the performance of this new installation.

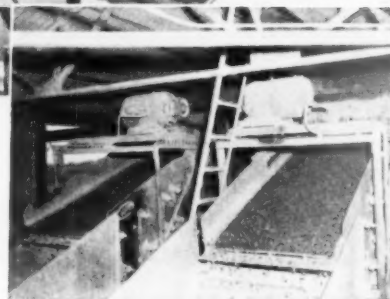
Here are a few of the outstanding features of Deister Heavy Duty Type

UHS Screens that make many users "repeat order" customers: *life-time unitized vibrating mechanism; opposed elliptical throw for greater speed and efficiency in sizing; divided interchangeable screening sections to distribute normal wear and prolong life of screening medium.*

(Top) Photo of New Fines Mill before it was covered, showing four Deister Type UHS Vibrating Screens as installed on upper and lower levels.

(Center) Upper floor of Buffalo's New Fines Mill, showing two 4' x 14' double-deck Deister Heavy-Duty UHS Vibrating Screens, with $\frac{1}{2}$ " screen cloth on top deck and $\frac{1}{4}$ " on bottom deck. Type UHS Screens are available in 3', 4', 5' widths; 10', 12', 14' lengths; single-, double-, and triple-deck.

(Below) Exterior view of New Fines Mill at Bowmansville plant.



DEISTER

DEISTER MACHINE COMPANY

1933 EAST WAYNE STREET, FORT WAYNE 4, INDIANA

ROCK PRODUCTS

DIRECTORY OF MANUFACTURERS' EQUIPMENT

1954

Machinery, equipment and supplies for the Rock Products' Industries are listed alphabetically and the names and addresses of manufacturers indicated.

Advertisers who use ROCK PRODUCTS are identified by a dot (•) preceding the listing.

Numbers under manufacturers' listing identify subdivision in which their equipment falls. See beginning of each classification for code identification.

A

ABRASIVES

- AMERICAN WHEELABRATOR & EQUIPMENT CORP., 1281 South Byrkit St., Mishawaka, Indiana
- CLIPPER MFG. CO., 2800 Warwick, Kansas City 8, Mo.
- PANGBORN CORP., Hagestown, Md.

ADMIXTURES, Aggregate

- A. C. HORN CO., INC., 10th St. & 44th Ave., Long Island City 1, N.Y.
- THE MASTER BUILDERS CO., 7016 Euclid Ave., Cleveland 3, Ohio
- ORONITE CHEMICAL CO., 38 Sansome St., San Francisco, Calif.
- REARDON INDUSTRIES, INC., 2837 Stanton Ave., Cincinnati 6, Ohio
- TAMMS INDUSTRIES INC., 228 N. LaSalle St., Chicago 1, Ill.
- VAN HOVEN CO., INC., 418 Bremer Arcade, St. Paul 1, Minn.

AERATION UNIT, for Blending Agitation in Bins

- THE BIN-DICATOR COMPANY, 13946 Kercheval Avenue, Detroit 15, Michigan
- FULLER CO., 128 Bridge St., Catsaqua, Pa.
- F. L. SMITH & CO., 11 W. 42nd St., New York 36, N.Y.

AERIAL TRAMWAYS

- SAUERMAN BROS., INC., 530 S. Clinton St., Chicago 7, Ill.
- AMERICAN STEEL & WIRE DIV., UNITED STATES STEEL CORP., 614 Superior Ave. N.W., Rockefeller Bldg., Cleveland 13, Ohio
- COLUMBIA-GENEVA STEEL DIV., UNITED STATES STEEL CORP., 1403 Russ Bldg., San Francisco 6, Calif.

AFTERCOOLERS, Air

- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- F. L. SMITH & CO., 11 West 42nd St., New York 36, N.Y.
- R. C. STANHOPE, INC., 60 E. 42nd St., New York, N.Y.

AGGREGATES, for Concrete, Lightweight Slag, Haydite, Pumice, Perlite, Cinders, etc.

- THE CELOTEX CORP., 120 S. La Salle St., Chicago 3, Ill.
- DULUTH SLAG CO., Foot of 59th Avenue West, Duluth 7, Minn.

- HARRISON-WALKER REFRACTORIES CO., 1800 Farmers Bank Bldg., Pittsburgh 22, Pa.
- THE MARIETTA CONCRETE CORP., 1949 Register Ave., Marietta, Ohio
- R. P. MCMINDES, INC., P.O. Box 52, 619 Centre St., Ashland, Pa.
- PUMICE, INC., 1820 N. Yellowstone Ave., P.O. Box 517, Idaho Falls, Idaho
- REARDON INDUSTRIES, INC., 2837 Stanton Ave., Cincinnati 6, Ohio
- UNITED STATES STEEL CORP., 525 William Penn Place, Pittsburgh 30, Pa.
- THE WAYLITE CO., 105 W. Madison St., Chicago 2, Ill.

AGITATORS (see Vibrators, Portable Concrete)

AGITATORS, Slurry (see Slurry Agitators)

AIR COMPRESSORS

1. Portable
 2. Stationary
- ALLIS-CHALMERS MFG. CO., 975 S. 70th St., Milwaukee 1, Wisc.
 - AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.
 - CHICAGO PNEUMATIC TOOL CO., 6 East 44th St., New York 17, N.Y.
 - FULLER CO., 128 Bridge St., Catsaqua, Pa.
 - GARDNER-DENVER CO., Quincy, Ill.
 - INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
 - THE JAEGER MACHINE CO., 550 W. Spring St., Columbus 16, Ohio
 - JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
 - LEROI COMPANY, 1706 S. 68th St., Milwaukee 14, Wisc.
 - SCHRAMM, INC., West Chester, Pa.
 - R. C. STANHOPE, INC., 60 E. 42nd St., New York, N.Y.
 - WORTHINGTON CORP., So. 2nd St., Plainfield, N. J.

AIR CONDITIONING EQUIPMENT

- DRAVO CORP., Dravo Bldg., Fifth & Liberty Aves., Pittsburgh 22, Pa.

- GENERAL ELECTRIC CO., 1 River Rd., Schenectady 5, N.Y.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago 1, Ill.
- THE READY-POWER CO., 11231 Freud Ave., Detroit 14, Mich.

AIR CONVEYORS (see Conveyors, Air)

AIR ENTRAINING AGENTS

- AUTOLENE LUBRICANTS CO., PROTEX INDUSTRIAL DIV., 1331 W. Evans, Denver 9, Ohio
- DEWEY AND ALMY CHEMICAL CO., 62 Whittemore Ave., Cambridge 40, Mass.
- HERCULES POWDER CO., 946 King Street, Wilmington 99, Dela.
- A. C. HORN CO., INC., 10th St. & 44th Ave., Long Island City 1, N.Y.
- THE MASTER BUILDERS CO., 7016 Euclid Ave., Cleveland 3, Ohio
- MINERAL PIGMENTS CORP., Washington Blvd., Muirkirk, Md.
- NOPCO CHEMICAL CO., First & Essex Sts., Harrison, N. J.
- ORONITE CHEMICAL CO., 38 Sansome St., San Francisco, Calif.
- REARDON INDUSTRIES, INC., 2837 Stanton Ave., Cincinnati 6, Ohio
- VAN HOVEN CO., INC., 418 Bremer Arcade, St. Paul 1, Minn.
- VERISET CORP., 150 Nassau St., New York City 38, N.Y.

AIR FILTERS

- AMERICAN AIR FILTER CO., INC., 215 Central Av., Louisville 8, Ky.
- AMERICAN WHEELABRATOR & EQUIPMENT CORP., 1281 S. Byrkit St., Mishawaka, Indiana
- E. D. BULLARD CO., 275 Eighth St., San Francisco 3, Calif.
- THE GOODYEAR TIRE & RUBBER CO., INC., 1144 E. Market St., Akron 16, Ohio
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- LINCOLN ENGINEERING CO., 5701 Natural Bridge Ave., St. Louis 20, Mo.
- MINE SAFETY APPLIANCES CO., 201 N. Braddock Ave., Pittsburgh 8, Pa.
- TURNER & HAWS ENGINEERING CO., INC., 87 Gardner St., West Roxbury 32, Mass.
- VICTOR EQUIPMENT CO., 844 Folsom St., San Francisco 7, Calif.

AIR HEATERS

- AMERICAN AIR FILTER CO., INC., 215 Central Av., Louisville 8, Ky.

AIR LINE LUBRICATORS

- GARDNER-DENVER CO., Quincy, Ill.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- LINCOLN ENGINEERING CO., 5701 Natural Bridge Ave., St. Louis 20, Mo.
- ALEMITE DIV., STEWART-WARNER CORP., 1826 Diversey Pkway., Chicago 14, Ill.
- THOR POWER TOOL CO., 175 N. State St., Aurora, Ill.
- VICTOR EQUIPMENT CO., 844 Folsom St., San Francisco 7, Calif.
- WORTHINGTON CORP., So. 2nd St., Plainfield, N. J.

AIR RECEIVERS, Tanks, Steel

- GENERAL AMERICAN TRANSPORTATION CORP., 135 S. La Salle St., Chicago 90, Ill.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- MANITOWOC SHIPBUILDING, INC., 16th & River Sts., Manitowoc, Wisc.

AIR SEPARATORS

- BRADLEY PULVERIZER CO., 123 S. Third St., Allentown, Pa.
- COMBUSTION ENGINEERING, INC., RAYMOND DIV., 1315 N. Branch St., Chicago 22, Ill.
- FULLER CO., 128 Bridge St., Catsaqua, Pa.
- HARDINGE CO., INC., 240 Arch St., York, Pa.
- W. P. HEINEKEN, INC., 50 Broad St., New York 3, N.Y.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- REES BLOW PIPE MFG. CO., 340 Seventh St., San Francisco 3, Calif.
- F. L. SMITH & CO., 11 West 42nd St., New York 36, N.Y.
- STURTEVANT MILL COMPANY, 102 Clayton St., Dorchester, Boston 22, Mass.
- UNIVERSAL ROAD MACHINERY CO., 27 Emerick St., Kingston, N.Y.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WILLIAMS PATENT CRUSHER & PULVERIZER CO., INC., 813 Montgomery St., St. Louis 6, Mo.

AIR TRANSPORT SYSTEMS (see Conveyors, Air)

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

ALLOYS

1. Abrasion Resisting
 2. Heat Resisting
 3. Manganese
- **AMERICAN BRAKE SHOE CO.**, 230 Park Ave., New York 17, N.Y. 1—2—3
 - **AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO.**, 389 E. 14th St., Chicago Heights, Ill. 1—2—3
 - **CALUMET STEEL CASTINGS CORP.**, 1636 Summer St., Hammond, Ind. 1—2
 - **ELECTRIC STEEL FOUNDRY CO.**, 2141 N.W. 25th Ave., Portland 10, Ore. 1—2—3
 - **THE FAHRALLOY CO.**, 150th & Lexington Aves., Harvey, Ill. 1—2
 - **HAYNES STELLITE CO.**, 725 S. Lindsay, Kokomo, Ind. 1—2
 - **KENSINGTON STEEL CO.**, 505 Kensington Ave., Chicago 28, Ill. 1—2
 - **JOSEPH T. RYERSON & SON, INC.**, P.O. Box 8000-A, Chicago 80, Ill. 1—2—3
 - **STOOBY CO.**, Whittier, Calif. 1—2—3
 - **STULZ-SICKLES CO.**, 134 Lafayette St., Newark 5, N.J. 1—3
 - **TAYLOR-WHARTON IRON & STEEL CO.**, High Bridge, N.J. 1—3
 - **THOMAS FOUNDRIES, INC.**, 3800 10th Ave., P.O. Box 1111, Birmingham 1, Ala. 1
 - **COLUMBIA-GENEVA STEEL DIV., UNITED STATES STEEL CORP.**, 1403 Russ Bldg., San Francisco 6, Calif. 1—2—3
 - **WALL COLMONOY CORP.**, 19345 John R St., Detroit 3, Mich. 1—2

ALTERNATORS, Electric

- **ALLIS-CHALMERS MFG. CO.**, 975 So. 70th St., Milwaukee 1, Wisc. 1
- **ELECTRIC MACHINERY MFG. CO.**, 800 Central Avenue, Minneapolis 13, Minn. 1
- **GENERAL ELECTRIC CO.**, 1 River Rd., Schenectady 5, N.Y. 1

AMMETERS, Electric

- **GENERAL ELECTRIC CO.**, 1 River Rd., Schenectady 5, N.Y. 1
- **ALEMITE DIV., STEWART-WARNER CORP.**, 1826 Diversy Pkwy., Chicago 14, Ill. 1

ANTI-FRICTION BEARINGS (see Bearings)

APRON FEEDERS (see Feeders, Apron)

ARC WELDING APPARATUS (see Welding Machines, Arc)

ASPHALTIC CONCRETE Cold Mix—Cold Lay

- **A. C. HORN CO., INC.**, 10th St. & 44th Ave., Long Island City 1, N.Y. 1
- **NATIONAL AMALGA-PAVE, INC.**, 357 S. Robertson Blvd., Beverly Hills, Calif. 1
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y. 1

ASPHALT MIXING PLANTS

- **BARBER-GREENE CO.**, 400 N. Highland Ave., Aurora, Ill. 1
- **BLAW-KNOX CO.**, Blawnox, Pittsburgh, Pa. 1

- **HETHERINGTON & BERNER, INC.**, 701 Kentucky Ave., Indianapolis 7, Ind. 1
- **IOWA MFG. CO.**, 916-16th St., N.E., Cedar Rapids, Iowa 1
- **KWIK MIX COMPANY**, Port Washington, Wisc. 1
- **NATIONAL AMALGA-PAVE, INC.**, 357 S. Robertson Blvd., Beverly Hills, Calif. 1
- **PIONEER ENGINEERING WORKS, INC.**, 1515 Central Ave., N.E., Minneapolis 13, Minn. 1
- **STANDARD STEEL CORP.**, 5036 Boyle Ave., Los Angeles 58, Calif. 1
- **UNIVERSAL ENGINEERING CORP.**, 625 C. Ave., N.W., Cedar Rapids, Iowa 1
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y. 1

AUTOCLAVES, Laboratory

- **JACKSON & CHURCH CO.**, 321 N. Hamilton St., Saginaw, Mich. 1
- **SHORE ENGINEERING**, 322 Broadway, New York 7, N.Y. 1

AXLES, Truck

- **AMERICAN STEEL FOUNDRIES**, 410 N. Michigan Ave., Chicago 11, Ill. 1
- **COOK BROS. EQUIPMENT CO.**, 3334 San Fernando Road, Los Angeles 65, Calif. 1
- **EATON MFG. CO.**, Axle Div., 739 E. 140th St., Cleveland 10, Ohio 1

AXLES & WHEELS, Car & Locomotive

- **UNITED STATES STEEL CORP.**, 525 William Penn Place, Pittsburgh 30, Pa. 1

B

BABBITT METAL (see Bearing Metals)

BAG CLEANERS

- **THE NORTHERN BLOWER CO.**, 6409 Barborton Ave., Cleveland 2, Ohio 1
- **REES BLOW PIPE MFG. CO.**, 340 Seventh St., San Francisco 3, Calif. 1

BAGGING MACHINES

- **E. D. CODDINGTON MFG. CO.**, 5024 N. 37th Street, Milwaukee 9, Wisconsin 1
- **BAGPAK DIVISION, INTERNATIONAL PAPER COMPANY**, 220 East 42nd Street, New York 17, New York 1
- **RICHARDSON SCALE CO.**, 668-698 Van Houten Ave., Clifton, N.J. 1
- **ST. REGIS PAPER CO.**, 230 Park Ave., New York 17, N.Y. 1
- **UNION BAG & PAPER CORP.**, 233 Broadway, New York 7, N.Y. 1

BAGS, Dust Collector

- **AMERICAN AIR FILTER CO., INC.**, 215 Central Avenue, Louisville 8, Ky. 1
- **AMERICAN WHEELABRATOR & EQUIPMENT CORP.**, 1281 S. Byrkit St., Mishawaka, Indiana 1
- **THE NORTHERN BLOWER CO.**, 6409 Barborton Ave., Cleveland 2, Ohio 1
- **REES BLOW PIPE MFG. CO.**, 340 Seventh St., San Francisco 3, Calif. 1
- **SINTERING MACHINERY CORP.**, Netcong, N.J. 1

BAGS

- 1. Paper
- 2. Cloth
- **BEMIS BROS. BAG CO.**, 408-M Pine St., St. Louis 2, Mo. 1—2

- **CHASE BAG CO.**, (Gen. Sales Office) 309 W. Jackson Blvd., Chicago 6, Ill. 1—2

- **EQUITABLE PAPER BAG CO., INC.**, 45-50 Van Dam St., Long Island City 1, N.Y. 1

- **FULTON BAG & COTTON MILLS**, 170 Boulevard, S.E., Atlanta, Ga. 1—2

- **GILMAN PAPER CO.**, 630 5th Ave., New York 20, N.Y. 1

- **BAGPAK DIVISION, INTERNATIONAL PAPER COMPANY**, 220 East 42nd Street, New York 17, New York 1

- **HAMMOND BAG & PAPER CO.**, 18th St., Wellsburg, W. Va. 1

- **HUDSON PULP & PAPER CORP.**, 505 Park Ave., New York 22, N.Y. 1

- **KRAFT BAG CORP.**, 630 Fifth Ave., New York 17, N.Y. 1

- **ST. REGIS PAPER CO.**, 230 Park Ave., New York 17, N.Y. 1

- **UNION BAG AND PAPER CORP.**, 233 Broadway, New York 7, N.Y. 1

BAG TIES, Wire

- **THE COLORADO FUEL AND IRON CORP.**, Continental Oil Building, Denver 2, Colorado 1
- **ST. REGIS PAPER CO.**, 230 Park Ave., New York 17, N.Y. 1

BALL BEARINGS (see Bearings, Ball)

BALL MILLS (see Mills, Ball)

BALLS & SLUGS, Grinding (see Grinding Media)

BARGES, Sand and Gravel, etc.

- **DRAVO CORP.**, Dravo Bldg., Fifth & Liberty Aves., Pittsburgh 22, Pa. 1
- **EAGLE IRON WORKS**, 127 Holcomb Ave., Des Moines 4, Iowa 1
- **YUBA MFG. CO.**, 351 California St., San Francisco 4, Calif. 1

BATCHERS, BIN

- 1. Weighing
- 2. Volumetric
- **ANCHOR CONCRETE MACHINERY CO.**, 1191 Fairview Ave., Columbus 12, Ohio 1—2
- **BESSER MFG. COMPANY**, Alpena, Mich. 1—2
- **BLAW-KNOX CO.**, Blawnox, Pittsburgh, Pa. 1
- **BODINSON MFG. CO.**, 2401 Bayshore Blvd., San Francisco 24, Calif. 1—2
- **BUTLER BIN CO.**, 945 Blackstone Ave., Waukesha, Wisc. 1—2
- **CARRIER CONVEYOR CORP.**, 2144 Frankfort Avenue, Louisville 6, Ky. 1

- **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington 1—2

- **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo. 1

- **THE FAIRFIELD ENGINEERING CO.**, 324 Barnhart St., Marion, Ohio 1—2

- **FANNING SCHUETT ENGINEERING CO.**, 4325 N. Third Street, Philadelphia 40, Pa. 1—2

- **FULLER CO.**, 128 Bridge St., Catonsville, Pa. 1

- **THE HOWE SCALE CO.**, Rutland, Vt. 1

- **THE JEFFREY MFG. CO.**, 935 N. Fourth St., Columbus 16, Ohio 1

- **C. S. JOHNSON CO.**, P. O. Box 71, Champaign, Ill. 1

- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y. 1—2

- **LIPPMANN ENGINEERING WORKS**, 4603 W. Mitchell St., Milwaukee 14, Wisc. 1

- **MERRICK SCALE MFG. CO.**, 180 Autumn St., Passaic, N.J. 1

- **NOBLE CO.**, 1860 7th St., Oakland 20, Calif. 1

- **RICHARDSON SCALE CO.**, 668-698 Van Houten Ave., Clifton, N.J. 1

- **ST. REGIS PAPER CO.**, 230 Park Ave., New York 17, N.Y. 1

- **SCIENTIFIC CONCRETE SERVICE CORP.**, 724 Salem Ave., Elizabeth 3, N.J. 1

- **STREETER-AMET CO.**, 4101 N. Ravenswood Ave., Chicago 13, Ill. 1

- **SYNTRON CO.**, 450 Lexington Ave., Hamer City, Pa. 1

- **TRIANGLE ENGINEERING CO.**, 2948 W. 26th St., Chicago 23, Ill. 1—2

- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y. 1—2

BATCHING PLANTS

- **BLAW-KNOX CO.**, Blawnox, Pittsburgh, Pa. 1
- **BODINSON MFG. CO.**, 2401 Bayshore Blvd., San Francisco 24, Calif. 1
- **BUTLER BIN CO.**, 945 Blackstone Ave., Waukesha, Wisc. 1
- **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington 1
- **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo. 1
- **COOK BROS. EQUIPMENT CO.**, 3334 San Fernando Road, Los Angeles 65, Calif. 1
- **THE FAIRFIELD ENGINEERING CO.**, 324 Barnhart St., Marion, Ohio 1
- **FANNING SCHUETT ENGINEERING CO.**, 4325 N. Third Street, Philadelphia 40, Pa. 1
- **C. S. JOHNSON CO.**, P. O. Box 71, Champaign, Ill. 1
- **LIPPMANN ENGINEERING WORKS**, 4603 W. Mitchell St., Milwaukee 14, Wisc. 1
- **NOBLE CO.**, 1860-7th St., Oakland 20, Calif. 1
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y. 1

BATTERIES, Storage

- **THE GOODYEAR TIRE & RUBBER CO., INC.**, 1144 E. Market St., Akron 16, Ohio 1
- **THE MARIETTA CONCRETE CORP.**, 1949 Register Ave., Marietta, Ohio 1
- **UNITED STATES RUBBER CO.**, 1230 Ave. of the Americas, New York 20, N.Y. 1

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

BATTERY CHARGING EQUIPMENT

- GENERAL ELECTRIC CO., 1 River Rd., Schenectady 5, N.Y.
- GENERAL SCIENTIFIC EQUIPMENT CO., 2735 W. Huntingdon St., Philadelphia 32, Pa.
- D. W. ONAN & SONS, INC., University Ave. S. E. at 25th, Minneapolis 14, Minn.

BEARING METALS

- AMERICAN BRAKE SHOE COMPANY, NATIONAL BEARING DIVISION, 4930 Manchester Avenue, St. Louis 10, Missouri
- AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.
- JOSEPH T. RYERSON & SON, INC., P.O. Box 8000-A, Chicago 80, Ill.
- STODY CO., Whittier, Calif.

BEARINGS

1. Ball
 2. Roller
 3. Thrust
 4. Needle
- AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y. 1-2-3
 - CHAIN BELT CO., 4649 W. Greenfield Ave., Milwaukee 1, Wisc. 2
 - DODGE MFG. CORP., 500 S. Union St., Mishawaka, Ind. 1-2
 - INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago 1, Ill. 1-2-3
 - LINK-BELT CO., 307 N. Michigan Ave., Chicago 1, Ill. 2-3
 - REES BLOW PIPE MFG. CO., 340 Seventh St., San Francisco 3, Calif. 2
 - ROLLWAY BEARING CO., INC., 541 Seymour St., Syracuse 4, N.Y. 2-3
 - SHAFER BEARING CORP., 800 Burlington Ave., Downers Grove, Ill. 2-3
 - S K F INDUSTRIES, INC., Front St. & Erie Ave., Philadelphia 32, Pa. 1-2-3
 - STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora, Ill. 1
 - THE TIMKEN ROLLER BEARING CO., 1835 Duerber Ave. S.W., Canton 6, Ohio 2
 - THE TORRINGTON CO., Torrington, Conn. 1-2-3-4
 - THE TORRINGTON CO., BANTAM BEARINGS DIV., 3702 W. Sample St., South Bend 21, Ind. 1-2-3
 - BARBER-GREENE CO., 400 N. Highland Ave., Aurora, Ill.
 - CHAIN BELT CO., 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
 - CONTINENTAL GIN CO., 4500 5th Ave. S., Birmingham, Ala.
 - FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
 - LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
 - LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wisc.
 - MECKUM ENGINEERING, INC., Dayton Road, Ottawa, Ill.
 - UNIVERSAL ENGINEERING CORP., 625 C. Ave. N.W., Cedar Rapids, Iowa
 - WEBSTER MFG. CO., West Hall St., Tiffin, Ohio

BELT ALIGNERS

BELT CONVEYORS AND ACCESSORIES (see Conveyors, Belt)

BELT CUTTERS

- ARMSTRONG-BRAY & COMPANY, 5366 Northwest Highway, Chicago 30, Illinois
- FLEXIBLE STEEL LACING CO., 4607 Lexington St., Chicago 44, Ill.

BELT FASTENERS AND LACING

- ARMSTRONG-BRAY & COMPANY, 5366 Northwest Highway, Chicago 30, Illinois
- CARLYLE RUBBER CO., INC., 62 Park Place, New York 7, N.Y.
- FLEXIBLE STEEL LACING CO., 4607 Lexington St., Chicago 44, Ill.
- THREE POINT BELT LACING CO., P. O. Box 389, Peace Dale, R.I.

BELT PULLEYS (see Pulleys, Conveyors, etc.)

BELT TRIPPERS (see Conveyor Belt Trippers)

BELTING Chain

- CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
- THE FAHRALLOY CO., 150th & Lexington Aves., Harvey, Ill.
- THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.

BELTING, Heat Resistant

- THE AMERICAN RUBBER MFG. CO., 1145 Park Avenue, Oakland 8, Calif.
- CARLYLE RUBBER CO., INC., 62 Park Place, New York 7, N.Y.
- GOODALL RUBBER CO., 403 Whitehead Road, Trenton 4, N. J.
- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- QUAKER RUBBER CORP., DIV. OF H. K. PORTER CO., INC., OF PITTSBURGH, Tacony & Comly Sts., Philadelphia 24, Pa.
- RAYBESTOS-MANHATTAN, INC., MANHATTAN RUBBER DIV., 61 Willett St., Passaic, N. J.

BELTING, Rubber

1. Conveyor
 2. Bucket Elevator
 3. Power Transmission
- THE AMERICAN RUBBER MFG. CO., 1145 Park Avenue, Oakland 8, Calif. 1-2-3
 - BARBER-GREENE CO., 400 N. Highland Ave., Aurora, Ill. 1
 - BOSTON WOVEN HOSE & RUBBER COMPANY, P.O. Box 1071, Boston 3, Massachusetts 1-2-3
 - CARLYLE RUBBER CO., INC., 62 Park Place, New York 7, N.Y. 1-2-3
 - THE COLORADO FUEL AND IRON CORP., Continental Oil Building, Denver 2, Colorado 1
 - DURKEE-ATWOOD CO., 215 N.E. 7th St., Minneapolis 13, Minn. 3
 - GOODALL RUBBER CO., 403 Whitehead Road, Trenton 4, N. J. 1-2-3
 - B. F. GOODRICH CO., Akron 11, Ohio 1-2-3

- THE GOODYEAR TIRE & RUBBER CO., INC., 1144 E. Market St., Akron 16, Ohio 1-2-3

- E. D. HEES & SONS, 1301 N. Hollywood St., Memphis 8, Tenn. 1-2-3

- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn. 1-2-3

- E. F. HOUGHTON & CO., 303 W. Lehigh Ave., Philadelphia 33, Pa. 3

- REPUBLIC RUBBER DIV., LEE RUBBER & TIRE CORP., Albert Street, Youngstown 1, Ohio 1-2-3

- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill. 1-2

- PIONEER RUBBER MILLS, 353 Sacramento St., San Francisco 11, Calif. 1-2-3

- QUAKER RUBBER CORP., DIV. OF H. K. PORTER CO., INC., OF PITTSBURGH, Tacony & Comly Sts., Philadelphia 24, Pa. 1-2-3

- RAYBESTOS-MANHATTAN, INC., MANHATTAN RUBBER DIV., 61 Willett St., Passaic, N. J. 1-2-3

- THERMOID CO., Trenton, N. J. 1-2-3

- UNITED STATES RUBBER CO., 1230 Ave. of the Americas, New York 20, N.Y. 1-2-3

BELTING, V-Type

- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.
- THE AMERICAN PULLEY CO., 4200 Wissahickon Ave., Philadelphia 29, Pa.
- BOSTON WOVEN HOSE & RUBBER COMPANY, P.O. Box 1071, Boston 3, Massachusetts
- CARLYLE RUBBER CO., INC., 62 Park Place, New York 7, N.Y.
- DODGE MFG. CORP., 500 S. Union St., Mishawaka, Ind.
- DURKEE-ATWOOD CO., 215 N.E. 7th St., Minneapolis 13, Minn.
- FLEXIBLE STEEL LACING CO., 4607 Lexington St., Chicago 44, Ill.
- B. F. GOODRICH CO., Akron 11, Ohio
- THE GOODYEAR TIRE & RUBBER CO., INC., 1144-E. Market St., Akron 16, Ohio
- REPUBLIC RUBBER DIV., Lee Rubber & Tire Corp., Albert Street, Youngstown 1, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- QUAKER RUBBER CORP., DIV. OF H. K. PORTER CO., INC., OF PITTSBURGH, Tacony & Comly Sts., Philadelphia 24, Pa.
- RAYBESTOS DIV., RAYBESTOS-MANHATTAN, INC., 75 E. Main St., Stratford, Conn.
- RAYBESTOS-MANHATTAN, INC., MANHATTAN RUBBER DIV., 61 Willett St., Passaic, N. J.
- THERMOID CO., Trenton, N. J.
- UNITED STATES RUBBER CO., 1230 Ave. of the Americas, New York 20, N.Y.

BELTING, Wire

- THE COLORADO FUEL AND IRON CORP., Continental Oil Building, Denver 2, Colorado
- QUINN WIRE & IRON WORKS, Boone, Iowa

BENDING ROLLS, Reinforcing Steel

- HOUSTON CONCRETE PIPE CO., 6600 Washington Ave., P.O. Box 7767, Houston 7, Texas
- QUINN WIRE & IRON WORKS, Boone, Iowa

BIN AERATORS, Pneumatic

- THE BIN-DICATOR COMPANY, 13946 Kercheval Avenue, Detroit 13, Michigan
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washinton
- FULLER CO., 128 Bridge St., Catsaqua, Pa.
- C. S. JOHNSON CO., P.O. Box 71, Champaign, Ill.
- F. L. SMITH & CO., 11 W. 42nd St., New York 36, N.Y.
- ST. REGIS PAPER CO., 230 Park Ave., New York 17, N.Y.

BIN GATES

- BEAUMONT BIRCH CO., 1505 Race St., Philadelphia 2, Pa.
- BLAW-KNOX CO., Blawnox, Pittsburgh, Pa.
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- BUTLER BIN CO., 945 Blackstone Ave., Waukesha, Wisc.
- CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washinton
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- CONTINENTAL GIN CO., 4500 5th Ave. S., Birmingham, Ala.
- DIAMOND IRON WORKS, INC., 1728 North 2nd St., Minneapolis 11, Minn.
- THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio
- FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- FULLER CO., 128 Bridge St., Catsaqua, Pa.
- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- C. S. JOHNSON CO., P.O. Box 71, Champaign, Ill.
- LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wisc.
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Road, Ottawa, Ill.
- MC LANAHAN & STONE CORP., Wall & Jackson Sts., Hallidaysburg, Pa.
- PIONEER ENGINEERING WORKS, INC., 1515 Central Ave. N.E., Minneapolis 13, Minn.
- RICHARDSON SCALE CO., 668-698 Van Houten Ave., Clifton, N. J.
- SMITH ENGINEERING WORKS, 532 East Capitol Dr., Milwaukee 12, Wisc.
- THE STANDARD METAL MFG. CO., 110 Center St., Malinta, Ohio
- STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora, Ill.
- STRAUB MFG. CO., INC., 307 Chestnut St., Oakland 20, Calif.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio

BIN LEVEL INDICATORS

- THE BIN-DICATOR COMPANY, 13946 Kercheval Avenue, Detroit 13, Michigan
- BLAW-KNOX CO., Blawnox, Pittsburgh, Pa.
- BUTLER BIN CO., 945 Blackstone Ave., Waukesha, Wisc.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio
- FULLER CO., 128 Bridge St., Catawauqua, Pa.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wisc.
- RICHARDSON SCALE CO., 668-698 Van Houten Ave., Clifton, N. J.
- F. L. SMITH & CO., 11 West 42nd St., New York 36, N.Y.
- STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora Ill.
- SYNTON COMPANY, 430 Lexington Ave., Homer City, Pa.

BINS AND BATCHING EQUIPMENT

- BLAW-KNOX CO., Blawnox, Pittsburgh, Pa.
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- THE BRANFORD COMPANY, 145 Chestnut Street, New Haven, Conn.
- L. BURMEISTER CO., 4535 W. Mitchell St., Milwaukee 14, Wisc.
- BUTLER BIN CO., 945 Blackstone Ave., Waukesha, Wisc.
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- CONTINENTAL GIN CO., 4500 5th Ave. South, Birmingham, Ala.
- THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio
- FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wisc.
- THE MARIETTA CONCRETE CORP., 1949 Register Ave., Marietta, Ohio
- NOBLE CO., 1860-7th St., Oakland 20, Calif.
- RICHARDSON SCALE CO., 668-698 Van Houten Ave., Clifton, N. J.
- STURTEVANT MILL CO., 102 Clayton St., Dorchester, Boston 22, Mass.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

BINS, STORAGE: CONCRETE (MONOLITHIC)

- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- THE NICHOLSON CO., INC., 10 Rockefeller Plaza, New York 20, N.Y.

BIN, STORAGE: CONCRETE (PRECAST)

- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- THE DODSON MFG. CO., INC., 1463 Barwise Ave., Wichita 2, Kan.
- FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- THE MARIETTA CONCRETE CORP., 1949 Register Ave., Marietta, Ohio
- NEFF & FRY CO., 280 Elm St., Camden, Ohio
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

BINS, STORAGE: STEEL

- BALDWIN-LIMA-HAMILTON CORP., Construction Equipment Div., South Main St., Lima, Ohio
- BAUGHMAN MFG. CO., INC., Shipman Road, Jerseyville, Ill.
- BETHLEHEM STEEL CO., Third Street, Bethlehem, Pa.
- BLAW-KNOX CO., Blawnox, Pittsburgh, Pa.
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- BUTLER BIN CO., 945 Blackstone Ave., Waukesha, Wisc.
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- CONTINENTAL GIN CO., 4500 5th Ave. South, Birmingham, Ala.
- DIAMOND IRON WORKS, INC., 1728 North 2nd St., Minneapolis 11, Minn.
- THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio
- FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- GENERAL AMERICAN TRANSPORTATION CORP., 135 S. La Salle St., Chicago 90, Ill.
- GRUENDLER CRUSHER & PULV. CO., 2915 N. Market St., St. Louis 6, Mo.
- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- W. P. HEINEKEN, INC., 50 Broad St., New York 3, N.Y.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- THE KIRK & BLUM MFG. CO., 3120 Farrer St., Cincinnati 9, Ohio
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Road, Ottawa, Ill.
- PIONEER ENGINEERING WORKS, INC., 1515 Central Ave. N.E., Minneapolis 13, Minn.
- RICHARDSON SCALE CO., 668-698 Van Houten Ave., Clifton, N. J.
- SMITH ENGINEERING WORKS, 532 E. Capitol Dr., Milwaukee 12, Wisc.
- SPROUT WALDRON & CO., INC., Muncy, Pa.
- THE STANDARD METAL MFG. CO., 110 Center St., Malinta, Ohio
- TRACTOR & EQUIPMENT CO., 10000 S. Ridgeland Ave., Oak Lawn, Ill.
- UNIVERSAL ENGINEERING CORP., 625 C. Ave. N.W., Cedar Rapids, Iowa
- UNIVERSAL ROAD MACHINERY CO., 27 Emerick St., Kingston, N.Y.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WILLIAMS PATENT CRUSHER & PULVERIZER CO., INC., 813 Montgomery St., St. Louis 6, Mo.

BITS, Carbide Drill

- BRUNNER & LAY, INC., 9300 King Street, Franklin Park, Ill.
- GARDNER-DENVER CO., Quincy, Ill.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- E. J. LONGYEAR CO., 1700 Foshay Tower, Minneapolis 2, Minn.
- LOOMIS MACHINE CO., Tiffin, Ohio
- THE SALEM TOOL CO., 767 S. Ellsworth Ave., Salem, Ohio
- THROWAWAY BIT CORP., 4200 N.W. Yeon Ave., Portland 10, Ore.

BITS, Diamond

- PENNSYLVANIA DRILLING CO., 1201 Chartiers Ave., Pittsburgh 20, Pa.

BITS, Diamond Drilling

- SPRAGUE & HENWOOD, INC., 221 W. Olive St., Scranton 2, Pa.

BITS, Drill

- BRUNNER & LAY, INC., 9300 King Street, Franklin Park, Ill.
- BUCYRUS-ERIE CO., South Milwaukee, Wisc.
- CHICAGO PNEUMATIC TOOL CO., 6 E. 44th St., New York 17, N.Y.
- GARDNER-DENVER CO., Quincy, Ill.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- E. J. LONGYEAR CO., 1700 Foshay Tower, Minneapolis 2, Minn.
- SANDERSON CYCLONE DRILL CO., 157 S. Main St., Orrville, Ohio
- SCHRAMM, INC., West Chester, Pa.
- THROWAWAY BIT CORP., 4200 N.W. Yeon Ave., Portland 10, Ore.

BITS, Drill, Detachable

- BRUNNER & LAY, INC., 9300 King Street, Franklin Park, Ill.
- GARDNER-DENVER CO., Quincy, Ill.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- LOOMIS MACHINE CO., Tiffin, Ohio
- SCHRAMM, INC., West Chester, Pa.
- THROWAWAY BIT CORP., 4200 N.W. Yeon Ave., Portland 10, Ore.

BITS, Drill, Grinders

- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- THE MINE & SMELTER SUPPLY CO., 17th & Blake, Denver 17, Colo.

BLACKSMITH TOOLS

- CHICAGO PNEUMATIC TOOL CO., 6 East 44th St., New York 17, N.Y.

BLASTING MACHINES

- ATLAS POWDER COMPANY, Wilmington 9, Delaware
- E. I. DU PONT DE NEMOURS & CO., INC., 11502 Nemours Building, Wilmington 98, Del.
- HERCULES POWDER CO., 946 King St., Wilmington 99, Del.
- ILLINOIS POWDER MFG. CO., 506 Olive St., St. Louis 16, Mo.
- THE KING POWDER CO., INC., P.O. Box 974, Cincinnati 1, Ohio
- TROJAN POWDER CO., 17-N 7th St., Allentown, Pa.

BLASTING SUPPLIES

- ATLAS POWDER COMPANY, Wilmington 99, Delaware
- E. I. DU PONT DE NEMOURS & CO., INC., 11502 Nemours Bldg., Wilmington 98, Del.
- HERCULES POWDER CO., 946 King St., Wilmington 99, Del.
- ILLINOIS POWDER MFG. CO., 506 Olive St., St. Louis 16, Mo.
- THE KING POWDER CO., INC., P. O. Box 974, Cincinnati 1, Ohio
- TROJAN POWDER CO., 17-N 7th St., Allentown, Pa.
- VICTOR EQUIPMENT CO., 844 Folsom St., San Francisco 7, Calif.

BLOCK MACHINES, Concrete Building

1. Tamping
 2. Vibrating
- ANCHOR CONCRETE MACHINERY CO., 1191 Fairview Ave., Columbus 12, Ohio
- 1—2
- J. W. APPLEY & SON, INC., 831 9th St. North, St. Petersburg 2, Fla.
- 2
- BERGEN MACHINE & TOOL CO., INC., 189 Franklin Avenue, Nutley 10, New Jersey
- 2
- BESSER MFG. CO., Alpena, Mich.
- 1—2
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- 1—2
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- 2
- CONCRETE MACHINERY CO., P.O. Drawer 60, Hickory, N.C.
- 1
- DES PLAINES CONCRETE PROD. MACHINERY, 930 North Ave., Des Plaines, Ill.
- 1—2
- FLEMING MFG. CO., Dept. C, Fleming Ave., Cuba, Mo.
- 1—2
- GENERAL ENGINES CO., INC., 307 Hunter St., Gloucester City, N. J.
- 2
- F. C. GEORGE MACHINE CO., INC., 100 S. Westmoreland Drive, Orlando, Fla.
- 1—2
- LITH-I-BAR CO., Holland, Mich.
- 2
- MULTIPLEX MACHINERY CO., DIV. OF MULTIPACK, INC., Fremont St., Elmore, Ohio
- 1—2
- THE GENE OLSEN CORP., 401 Grace St., Adrian, Mich.
- 1—2
- STEARNS MFG. CO., INC., 600 E. Beecher, Adrian, Mich.
- 2
- TRUAX MACHINE & TOOL CO., 16 Michigan St., Seattle 8, Wash.
- 1—2
- WITTEMANN MACHINERY CO., Farmingdale, N. J.
- 1—2

BLOCK MACHINES ACCESSORIES

- BERGEN MACHINE & TOOL CO., INC., 189 Franklin Avenue, Nutley 10, New Jersey
- BESSER MFG. CO., Alpena, Mich.
- THE BRANFORD COMPANY, 145 Chestnut Street, New Haven, Conn.
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- LITH-I-BAR CO., Holland, Mich.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

- M & M ENGR. CORP., 1017 W. 23rd St., Indianapolis 23, Ind.
- MULTIPLEX MACHINERY CO., DIV. OF MULTIPACK, INC., Fremont St., Elmore, Ohio
 - THE GENE OLSEN CORP., 401 Grace St., Adrian, Mich.
 - TRUAX MACHINE & TOOL CO., 16 Michigan St., Seattle 8, Wash.

BLOCKS, Pillow, Ball and Roller Bearing

- J. W. APPLEY & SON, INC., 831 9th Street North, St. Petersburg 2, Florida
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
 - CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
 - CONTINENTAL GIN CO., 4500 5th Ave. S., Birmingham, Ala.
 - DODGE MFG. CORP., 50 S. Union St., Mishawaka, Ind.
 - HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
 - THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
 - LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
 - S K F INDUSTRIES, INC., Front St. & Erie Ave., Philadelphia 32, Pa.
 - STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora, Ill.
 - WEBSTER MFG. CO., West Hall St., Tiffin, Ohio

BLOCKS, REFRACTORY, (see Refractories)

BLOCKS, Sheave and Chain

- AMERICAN HOIST AND DERRICK COMPANY, 63 South Robert St., St. Paul 1, Minnesota
- MADESCO TACKLE BLOCK CO., P. O. Box 148, Easton, Pa.
 - SAUERMAN BROS. INC., 530 S. Clinton St., Chicago 7, Ill.

BLOCK SPLITTERS

- J. W. APPLEY & SON, INC., 831 9th Street North, St. Petersburg 2, Florida
- BESSER MANUFACTURING COMPANY, Alpena, Mich.
 - COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
 - CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
 - DES PLAINES CONCRETE PROD. MACHINERY, 930 North Ave., Des Plaines, Ill.
 - FLEMING MFG. CO., Dept. C, Fleming Ave., Cuba, Mo.
 - LITH-I-BAR CO., Holland, Mich.

BLOWERS (see Fans and Blowers)

BLOW TORCHES, Heaters, Thawing Outfits for Frozen Aggregates

- HAUCK MANUFACTURING COMPANY, 124-136 Tenth Street, Brooklyn 15, New York
- LITTLEFORD BROS., INC., 453 E. Pearl St., Cincinnati 2, Ohio

BOATS, Derricks, Tow

- DRAYO CORP., Dravo Bldg., Fifth & Liberty Aves., Pittsburgh 22, Pa.

BOATS, Self-Loading

- HEWITT-ROBINS INC., 666 Glenbrook Road, Stamford, Conn.

MANITOWOC SHIPBUILDING, INC., 16th & River Sts., Manitowish, Wis.

BODIES, Ready Mixed Concrete

1. Transit Mixed
 2. Non-Agitator
- BLAW-KNOX CO., Blawnox, Pittsburgh, Pa.
 - 1—2
 - CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
 - CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
 - CONSERCO CO., River Road & B&O RR, Washington 16, D.C.
 - COOK BROS. EQUIPMENT CO., 3334 San Fernando Road, Los Angeles 65, Calif.
 - HERCULES STEEL PROD. CORP., Sherman Street, Galion, Ohio
 - IMPERIAL CONSTRUCTION EQUIPMENT CO., 3400 Lake St., Melrose Park, Ill.
 - THE JAEGER MACHINE CO., 550 W. Spring St., Columbus 16, Ohio
 - LEROI CO., 1706 S. 68th St., Milwaukee 14, Wisc.
 - MAXON CONSTRUCTION CO., INC., MFG. DIV., 131 N. Ludlow St., Dayton 2, Ohio
 - THE T. L. SMITH CO., 2835 N. 32nd St., Milwaukee 10, Wis.
 - RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
 - 1—2
 - WILLARD CONCRETE MACHINERY CO., LTD., 11700 Wright Rd., Lynwood, Calif.
 - 1—2
 - WORTHINGTON CORP., So. 2nd St., Plainfield, N. J.
 - 1—2

BODIES, Detachable Concrete Truck

- SCHONROCK EQUIPMENT MFG. CO., Mathis Field, P. O. Box 1543 San Angelo, Texas
- WILLARD CONCRETE MACHINERY CO., LTD., 11700 Wright Rd., Lynwood, Calif.

BODIES, Dump, Dump Truck

- COOK BROS. EQUIPMENT CO., 3334 San Fernando Road, Los Angeles 65, Calif.
- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- THE GALION ALLSTEEL BODY CO., 605 S. Market St., Galion, Ohio
- GAR WOOD IND., INC., Wayne Division, Wayne, Mich.
- THE HEIL COMPANY, 3000 W. Montana St., Milwaukee 1, Wisc.
- HERCULES STEEL PROD. CORP., Sherman Street, Galion, Ohio
- KOEHRING CO., 3026 W. Concordia Ave., Milwaukee 16, Wis.
- THE MARION METAL PROD. CO., Cheney Avenue, Marion, Ohio
- NATIONAL LIFT CO., 800 Lowell St., Ypsilanti, Mich.
- ST. PAUL HYDRAULIC HOIST, 2207 University Ave., Minneapolis 14, Minn.

BODIES, Trailer

- BAUGHMAN MFG. CO., INC., Shipman Road, Jerseyville, Ill.

- COOK BROS. EQUIPMENT CO., 3334 San Fernando Road, Los Angeles 65, Calif.
- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- THE FRUEHAUF TRAILER CO., 10940 Harper Ave., Detroit 32, Mich.
- THE GALION ALLSTEEL BODY CO., 605 S. Market Street, Galion, Ohio
- GAR WOOD IND., INC., Wayne Division, Wayne, Mich.
- LANDIS STEEL CO., 116 West A St., P.O. Box 248, Picher, Okla.
- SCHONROCK EQUIPMENT MFG. CO., Mathis Field, P.O. Box 1543, San Angelo, Texas
- ST. PAUL HYDRAULIC HOIST 2207 University Ave., Minneapolis 14, Minn.
- WINCH-LIFT, INC., 505 First National Bank Bldg., Shreveport, La.

BODIES, Trailer, Bulk Cement

- BAUGHMAN MFG. CO., INC., Shipman Road, Jerseyville, Ill.
- CEMCO INDUSTRIES, INC., Galion, Ohio
- COOK BROS. EQUIPMENT CO., 3334 San Fernando Road, Los Angeles 65, Calif.
- THE FRUEHAUF TRAILER CO., 10940 Harper Ave., Detroit 32, Mich.
- HERCULES STEEL PROD. CORP., Sherman St., Galion, Ohio
- HIGHWAY EQUIPMENT CO., INC., 623 D Ave. NW., Cedar Rapids, Iowa
- LANDIS STEEL CO., 116 West A St., P.O. Box 248, Picher, Okla.
- SCHONROCK EQUIPMENT MFG. CO., Mathis Field, P.O. Box 1543, San Angelo, Texas
- WINCH-LIFT, INC., 505 First National Bank Bldg., Shreveport, La.

BODIES, Truck, Concrete Block Self-unloading

- WM. BROS. BOILER & MFG. CO., 1057 10th Ave. S.E., Minneapolis 14, Minn.
- BUILDERS EQUIPMENT COMPANY, 4012 N. Central Avenue, Phoenix, Arizona
- NATIONAL LIFT CO., 800 Lowell St., Ypsilanti, Mich.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WILLARD CONCRETE MACHINERY CO., LTD., 11700 Wright Rd., Lynwood, Calif.

BOILER ACCESSORIES

- BURKHART ENGINEERING ASSOCIATES, 30 Huntington Avenue, Boston, Mass.

BOILER FEED WATER SYSTEMS

- BAILEY METER CO., 1050 Ivanhoe Rd., Cleveland 10, Ohio

BOILER INSULATION

- JOHNS-MANVILLE, 22 E. 40th St., New York 16, N.Y.

BOILER TUBES

- PLIBRICO CO., 1800 N. Kingsbury St., Chicago 14, Illinois
- THE BABCOCK & WILCOX CO., 161 W. 42nd St., New York 17, N.Y.
- WM. BROS. BOILER & MFG. CO., 1057 10th Ave. S.E., Minneapolis 14, Minn.

BOILERS

- THE BABCOCK & WILCOX CO., 161 W. 42nd St., New York 17, N.Y.

- WM. BROS. BOILER & MFG. CO., 1057 10th Ave. S.E., Minneapolis 14, Minn.
- BURKHART ENGINEERING ASSOCIATES, 30 Huntington Avenue, Boston, Mass.
- CLEAVER-BROOKS CO., 326 E. Keefe Ave., Milwaukee 12, Wisc.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- SHORE ENGINEERING, 322 Broadway, New York 7, N.Y.
- STORM, INC., 845-92nd Ave., Oakland 3, Calif.

BOILERS, Waste Heat

- THE BABCOCK & WILCOX CO., 161 W. 42nd St., New York 17, N.Y.
- CLEAVER-BROOKS CO., 326 E. Keefe Ave., Milwaukee 12, Wisc.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.

BOOSTERS, Voltage, Motor Generator

- GENERAL ELECTRIC CO., 1 River Rd., Schenectady 5, N.Y.

BRAKE LINING

- AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.
- JOHNS-MANVILLE, 22 E. 40th St., New York 16, N.Y.
- RAYBESTOS-MANHATTAN, INC., MANHATTAN RUBBER DIV., 61 Willett St., Passaic, N. J.
- RAYBESTOS DIV., RAYBESTOS-MANHATTAN, INC., 75 E. Main St., Strafford, Conn.
- THERMOID CO., Trenton, N. J.

BRAKES

1. Clutch
 2. Hydraulic
 3. Magnetic
- DYNAMATIC CORP., 3307 14th Ave., Kenosha, Wis.
 - GENERAL ELECTRIC CO., 1 River Rd., Schenectady 5, N.Y.
 - THE GOODYEAR TIRE & RUBBER CO., INC., 1144 E. Market St., Akron 16, Ohio
 - 1—2—3
 - STEARNS MAGNETIC INC., 675 S. 28th St., Milwaukee 46, Wis.
 - 3

BRICK, Refractory, Fire (see Refractories)

BRICK MACHINES AND MOLDS

1. Concrete
 2. Sand-Lime
- J. W. APPLEY & SON, INC., 831 9th St. North, St. Petersburg 2, Fla.
 - BESSER MFG. CO., Alpena, Mich.
 - COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
 - CONCRETE MACHINERY CO., P.O. Drawer 60, Hickory, No. Car.
 - FLEMING MFG. CO., Dept. C, Fleming Ave., Cuba, Mo.
 - JACKSON & CHURCH CO., 321 N. Hamilton St., Saginaw, Mich.
 - MULTIPLEX MACHINERY CO., DIV. OF MULTIPACK INC., Fremont St., Elmore, Ohio
 - 1—2
 - THE GENE OLSEN CORP., 401 Grace St., Adrian, Mich.
 - 1

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

BUCKET LOADERS

- **AMERICAN BRAKE SHOE COMPANY**, 230 Park Avenue, New York 17, New York
- **J. W. APPEL & SON, INC.**, 831-9th St. N., St. Petersburg 7, Fla.
- **BARBER-GREENE CO.**, 400 N. Highland Ave., Aurora, Ill.
- **BAUGHMAN MFG. CO., INC.**, Shipman Road, Jerseyville, Ill.
- **BUTLER BIN CO.**, 945 Blackstone Avenue, Waukesha, Wisc.
- **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo.
- **EAGLE CRUSHER CO., INC.**, 900 Harding Way East, Galion, Ohio
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.
- **M. P. NELSON IRON WORKS, INC.**, 820 Bloomfield Ave., Clifton, N.J.
- **PETTIBONE MULLIKEN CORP.**, 4700 W. Division St., Chicago 31, Ill.

BUCKET LIPS & TEETH

- **AMERICAN BRAKE SHOE CO.**, 230 Park Ave., New York 17, N.Y.
- **AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO.**, 389 E. 14th St., Chicago Heights, Ill.
- **BLAW-KNOX CO.**, Blawnox, Pittsburgh, Pa.
- **ELECTRIC STEEL FOUNDRY CO.**, 2141 N.W. 25th Ave., Portland 10, Ore.
- **THE FROG, SWITCH & MFG. CO.**, Carlisle, Pa.
- **GAR WOOD INDUSTRIES, INC.**, Findlay, Ohio
- **C. S. JOHNSON CO.**, P. O. Box 71, Champaign, Ill.
- **MARION POWER SHOVEL CO.**, 617 W. Center St., Marion, Ohio
- **THE OWEN BUCKET CO.**, 6001 Breakwater Ave., Cleveland 2, Ohio
- **PAGE ENGR. CO.**, Clearing Post Office, Chicago 38, Ill.
- **SAUERMAN BROS., INC.**, 530 S. Clinton St., Chicago 7, Ill.
- **TAYLOR-WHARTON IRON & STEEL CO.**, High Bridge, N.J.
- **H & L TOOTH CO.**, 1540 S. Greenwood Ave., Montebello, Calif.

BUCKETS

1. Clamshell & Orange Peel
 2. Dragline & Slackline
 3. Dredge & Excavator
 4. Elevator
 5. Grapple
 6. Skip
 7. Tramway
 8. Tractor Loader
- **AMERICAN BRAKE SHOE CO.**, 230 Park Ave., New York 17, N.Y.
 - **AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO.**, 389 E. 14th St., Chicago Heights, Ill.
 - **J. W. APPEL & SON, INC.**, 831-9th St. North, St. Petersburg 2, Fla.
 - **BAUGHMAN MFG. CO., INC.**, Shipman Road, Jerseyville, Ill.
 - **BEAUMONT BIRCH CO.**, 1505 Race St., Philadelphia 2, Pa.
 - **BERGEN MACHINE & TOOL CO., INC.**, 189 Franklin Avenue, Nutley 10, New Jersey
 - **BLAW-KNOX CO.**, Blawnox, Pittsburgh, Pa.
 - **BODINSON MFG. CO.**, 2401 Bayshore Blvd., San Francisco 24, Calif.

- **BUCHYRUS-ERIE CO.**, South Milwaukee, Wisc.
- **CHAIN BELT COMPANY**, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
- **CONTINENTAL GIN CO.**, 4500 5th Ave S., Birmingham, Ala.
- **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo.
- **DROTT MFG. CORP.**, 3841 W. Wisconsin Ave., Milwaukee 8, Wisc.
- **ELECTRIC STEEL FOUNDRY CO.**, 2141 N.W. 25th Ave., Portland 10, Ore.
- **THE FAIRFIELD ENGINEERING CO.**, 324 Barnhart St., Marion, Ohio
- **THE FROG, SWITCH & MFG. CO.**, Carlisle, Pa.
- **EASTON CAR & CONSTRUCTION CO.**, Easton, Pa.
- **GEO. HAISS MFG. CO., INC.**, Div. Pettibone Mulliken Corp., 350 Fifth Ave., New York 1, N.Y.
- **THE HAYWOOD CO.**, 50 Church St., New York 7, N.Y.
- **HENDRICK MFG. CO.**, 39 Dundaff St., Carbondale, Pa.
- **H & L TOOTH CO.**, 1540 S. Greenwood Ave., Montebello, Calif.
- **INSLEY MFG. CORP.**, 801 N. Olney St., Indianapolis 6, Ind.
- **IOWA MFG. CO.**, 916-16th St. N.E., Cedar Rapids, Iowa
- **THE JEFFREY MFG. CO.**, 935 N. Fourth St., Columbus 16, Ohio
- **C. S. JOHNSON CO.**, P. O. Box 71, Champaign, Ill.
- **JOS. F. KIESLER CO.**, 938 W. Huron St., Chicago 22, Ill.
- **LESSMANN MFG. CO.**, E. 20 and Easton Blvd., Des Moines 4, Iowa
- **LINK-BELT COMPANY**, 307 N. Michigan Ave., Chicago 1, Ill.
- **MECKUM ENGINEERING, INC.**, Dayton Road, Ottawa, Ill.
- **THE OWEN BUCKET CO.**, 6001 Breakwater Ave., Cleveland 2, Ohio
- **PAGE ENGR. CO.**, Clearing Post Office, Chicago 38, Ill.
- **PETTIBONE MULLIKEN CORP.**, 4700 W. Division St., Chicago 31, Ill.
- **"QUICK-WAY" TRUCK SHOVEL CO.**, 4150 Josephine St., Denver, Colo.
- **SAUERMAN BROS. INC.**, 530 S. Clinton St., Chicago 7, Ill.
- **SCHILD BANTAM CO.**, Park St., Waverly, Iowa
- **SMITH ENGINEERING WORKS**, 332 E. Capitol Dr., Milwaukee 12, Wis.
- **THE STANDARD METAL MFG. CO.**, 110 Center St., Malinta, Ohio
- **TAYLOR-WHARTON IRON & STEEL CO.**, High Bridge, N.J.
- **UNIVERSAL ENGINEERING CORP.**, 625 C. Ave., N.W. Cedar Rapids, Iowa

- **UNIVERSAL ROAD MACHINERY CO.**, 27 Emerick St., Kingston, N.Y.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.
- **WEBSTER MFG. CO.**, West Hall St., Tiffin, Ohio
- **WELLMAN ENGINEERING CO.**, 7000 Central Ave., Cleveland 4, Ohio
- **YAUN MFG. CO., INC.**, 2130 N. 3rd St., Baton Rouge, La.
- **YUBA MFG. CO.**, 351 California St., San Francisco 4, Calif.

BULK CEMENT HANDLING EQUIPMENT

- **BARBER-GREENE CO.**, 400 N. Highland Ave., Aurora, Ill.
- **BAUGHMAN MFG. CO., INC.**, Shipman Road, Jerseyville, Ill.
- **BEAUMONT BIRCH COMPANY**, 1505 Race Street, Philadelphia 2, Penn.
- **BLAW-KNOX CO.**, Blawnox, Pittsburgh, Pa.
- **BODINSON MFG. CO.**, 2401 Bayshore Blvd., San Francisco 24, Calif.
- **BUTLER BIN CO.**, 945 Blackstone Ave., Waukesha, Wisc.
- **CARRIER CONVEYOR CORP.**, 2144 Frankfort Avenue, Louisville 6, Ky.
- **CEMCO INDUSTRIES, INC.**, Galion, Ohio
- **CHAIN BELT COMPANY**, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
- **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington
- **CONTINENTAL GIN CO.**, 4500 5th Ave. S., Birmingham, Ala.
- **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo.
- **THE FAIRFIELD ENGINEERING CO.**, 324 Barnhart St., Marion, Ohio
- **FANNING SCHUETT ENGINEERING CO.**, 4325 N. Third Street, Philadelphia 40, Pa.
- **FULLER CO.**, 128 Bridge St., Catonsville, Md.
- **GRAMM TRAILER CORP.**, First Lima Bldg., Lima, Ohio
- **THE FRANK G. HOUGH CO.**, 939 Sunnyside Ave., Libertyville, Ill.
- **C. S. JOHNSON CO.**, P. O. Box 71, Champaign, Ill.
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.
- **LIPTMAN ENGINEERING WORKS**, 4603 W. Mitchell St., Milwaukee 14, Wis.
- **NOBLE CO.**, 1860-7th St., Oakland 20, Calif.
- **RICHARDSON SCALE CO.**, 668-698 Van Houten Ave., Clifton, N.J.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.
- **WEBSTER MFG. CO.**, West Hall St., Tiffin, Ohio

BULK CEMENT STORAGE PLANTS

- **BAUGHMAN MFG. CO., INC.**, Shipman Road, Jerseyville, Illinois
- **BLAW-KNOX CO.**, Blawnox, Pittsburgh, Pa.
- **BODINSON MFG. CO.**, 2401 Bayshore Blvd., San Francisco 24, Calif.
- **BUTLER BIN CO.**, 945 Blackstone Ave., Waukesha, Wisc.
- **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington

- **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo.
- **THE FAIRFIELD ENGINEERING CO.**, 324 Barnhart St., Marion, Ohio
- **FANNING SCHUETT ENGINEERING CO.**, 4325 N. Third Street, Philadelphia 40, Pa.
- **C. S. JOHNSON CO.**, P. O. Box 71, Champaign, Ill.
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.
- **THE MARIETTA CONCRETE CORP.**, 1949 Register Ave., Marietta, Ohio
- **THE NICHOLSON CO., INC.**, 10 Rockefeller Plaza, New York 20, N.Y.
- **NOBLE CO.**, 1860-7th St., Oakland 20, Calif.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

BULLDOZERS, Land Clearing Equipment

- **ALLIS-CHALMERS MFG. CO.**, 975 So. 70th St., Milwaukee 1, Wisc.
- **CATERPILLAR TRACTOR CO.**, Peoria 8, Ill.
- **DROTT MFG. CORP.**, 3841 W. Wisconsin Ave., Milwaukee 8, Wisc.
- **GAR WOOD INDUSTRIES, INC.**, Findlay, Ohio
- **THE HEIL COMPANY**, 3000 W. Montana St., Milwaukee 1, Wisc.
- **THE FRANK G. HOUGH CO.**, 939 Sunnyside Ave., Libertyville, Ill.
- **INTERNATIONAL HARVESTER CO.**, 180 N. Michigan Ave., Chicago 1, Ill.
- **LE TOURNEAU-WESTINGHOUSE CO.**, 2301 N. Adams St., Peoria 3, Ill.
- **THE OLIVER CORP.**, 400 W. Madison St., Chicago 6, Ill.
- **WOOLDRIDGE MFG. CO.**, Handy Ave., Sunnyvale, Calif.

BURNERS, Kiln

- **COEN CO.**, 40 Boardman Place, San Francisco, Calif.
- **HAUCK MANUFACTURING COMPANY**, 124-135 Tenth St., Brooklyn 15, New York
- **JOHNSTON MFG. CO.**, 2825 E. Hennepin Ave., Minneapolis 13, Minn.
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.
- **F. L. SMITH & CO.**, 11 West 42nd St., New York 36, N.Y.

BURNERS, Oil (see Oil Burners)

C

CABLE, Electric

- **ANACONDA WIRE & CABLE CO.**, 25 Broadway, New York 4, N.Y.
- **GENERAL CABLE CORP.**, Ex. Offices, 420 Lexington Ave., New York City 17, N.Y.
- **GENERAL ELECTRIC CO.**, 1 River Rd., Schenectady 5, N.Y.
- **JOY MFG. CO.**, Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- **JOHN A. ROEBLING'S SONS CORP.**, 640 S. Broad St., Trenton 2, N.J.
- **SIMPLEX WIRE & CABLE CO.**, 79 Sidney St., Cambridge 39, Mass.
- **UNITED STATES RUBBER CO.**, 1230 Ave. of the Americas, New York 20, N.Y.
- **AMERICAN STEEL & WIRE DIV., UNITED STATES STEEL CORP.**, 614 Superior Ave. N.W., Rockefeller Bldg., Cleveland 13, Ohio

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

CABLE, ELECTRIC, ACCESSORIES, Connectors, etc.

- ANACONDA WIRE & CABLE CO., 25 Broadway, New York 4, N.Y.
- GENERAL ELECTRIC CO., 1 River Rd., Schenectady 5, N.Y.
- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.

CABLE EXCAVATORS

- GAR WOOD INDUSTRIES, INC., Findlay, Ohio
- HARNISCHFEGGER CORP., 4400 W. National Ave., Milwaukee 46, Wisc.
- INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago 1, Ill.
- KOEHRING CO., 3026 W. Concordia Ave., Milwaukee 16, Wisc.
- LE TOURNEAU-WESTINGHOUSE CO., 2301 N. Adams St., Peoria 3, Ill.
- SAUERMAN BROS. INC., 530 S. Clinton St., Chicago 7, Ill.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WOOLDRIDGE MFG. CO., Hendy Ave., Sunnyvale, Calif.

CABLEWAYS

- SAUERMAN BROS. INC., 530 S. Clinton St., Chicago 7, Ill.
- AMERICAN STEEL & WIRE DIV., UNITED STATES STEEL CORP., 614 Superior Ave. N.W., Rockefeller Bldg., Cleveland 13, Ohio
- COLUMBIA-GENEVA STEEL DIV., UNITED STATES STEEL CORP., 1403 Russ Bldg., San Francisco 6, Calif.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

CALCIUM CHLORIDE

- SOLVAY PROCESS DIV., ALLIED CHEMICAL & DYE CORP., 61 Broadway, N. New York 6, N.Y.
- A. C. HORN CO., INC., 10th St. & 44th Ave., Long Island City 1, N.Y.
- TAMMS INDUSTRIES, INC., 228 N. LaSalle St., Chicago 1, Ill.

CAPACITATORS, Electric

- GENERAL ELECTRIC CO., 1 River Rd., Schenectady 5, N.Y.

CAPSTANS & WINCHES

- CHICAGO PNEUMATIC TOOL CO., 6 East 44th St., New York 17, N.Y.
- GAR WOOD IND., INC., Wayne Div., Wayne, Mich.
- HYSTER CO., 2918 N.E. Clockmas St., Portland 8, Ore.
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- PAGE ENGR. CO., Clearing Post Office, Chicago 38, Ill.
- STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora, Ill.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- TULSA WINCH DIV., Vickers, Inc., 815 E. First St., Tulsa 3, Okla.

CAR COUPLINGS, WHEELS & LINERS

- AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.
- AMERICAN MANGANESE STEEL DIV. OF AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.

CAR DUMPERS

- DIFFERENTIAL STEEL CAR CO., Findlay, Ohio
- ROGERS IRON WORKS CO., Joplin, Mo.
- LINK BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.

- WELLMAN ENGINEERING CO., 7000 Central Ave., Cleveland 4, Ohio

CAR LOADERS (see Loaders, Car)

CAR MOVERS, Pullers

- AMERICAN HOIST & DERRICK CO., 63 S. Robert St., St. Paul 1, Minn.
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- THE FRANK G. HOUGH CO., 939 Sunnyside Ave., Libertyville, Ill.
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora, Ill.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- WHITING CORP., Harvey, Ill.

CAR SHAKERS

- ALLIS-CHALMERS MFG. CO., 975 So. 7th St., Milwaukee 1, Wisc.
- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- NATIONAL CONVEYOR & SUPPLY CO., 356 N. Harding Ave., Chicago 24, Ill.
- SIMPLICITY ENGINEERING CO., 213 S. Oak St., Durand, Mich.
- STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora, Ill.
- VIBRO-PLUS PRODUCTS, INC., 54-11 Queens Blvd., Woodside 77, N.Y.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio

CAR THAWERS

- HAUCK MANUFACTURING COMPANY, 124-136 Tenth St., Brooklyn 15, New York

CARS, Concrete Products

- ANCHOR CONCRETE MACHINERY CO., 1191 Fairview Ave., Columbus 12, Ohio
- BALDWIN-LIMA-HAMILTON CORP., Eddystone Div., Philadelphia 42, Penn.
- THE CHASE FOUNDRY & MFG. CO., 2300 Parsons Avenue, Columbus 7, Ohio
- EASTON CAR & CONSTRUCTION CO., Easton, Pa.

CARS, Dump

- BALDWIN-LIMA-HAMILTON CORP., Eddystone Div., Philadelphia 42, Pa.
- DIFFERENTIAL STEEL CAR CO., Findlay, Ohio
- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

CARS, Electric, Remote Control

- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- GENERAL ELECTRIC CO., 1 River Rd., Schenectady 5, N.Y.

CARS, Mine, Quarry, Industrial

- BALDWIN-LIMA-HAMILTON CORP., Eddystone Div., Philadelphia 42, Pa.
- BETHLEHEM STEEL CO., Third St., Bethlehem, Pa.
- DIFFERENTIAL STEEL CAR CO., Findlay, Ohio

- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- STRAUB MFG. CO., INC., 507 Chestnut St., Oakland 20, Calif.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

CARS, Railroad, Retaining Doors, Strapping

- DIFFERENTIAL STEEL CAR CO., Findlay, Ohio

CARTRIDGES, Rotary, Kilns, Slag Removal

- CARDON CORP., 307 N. Michigan Avenue, Chicago 1, Illinois
- REMINGTON ARMS CO., INC., 939 Barnum Ave., Bridgeport 2, Conn.

CASTINGS, Repair Parts

1. Bronze
 2. Gray Iron
 3. Heat Resisting Steel
 4. Malleable
 5. Manganese
 6. Special Alloy
 7. Steel
- ALLIS-CHALMERS MFG. CO., 975 So. 7th St., Milwaukee 1, Wisc. 1-2-6
 - AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y. 1-2-3-4-5-6
 - AMERICAN BRAKE SHOE COMPANY, NATIONAL BEARING DIVISION, 4930 Manchester Avenue, St. Louis 10, Missouri 1
 - AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill. 3-5-6
 - BALDWIN-LIMA-HAMILTON CORP., Eddystone Div., Philadelphia 42, Pa. 2-4-7
 - BETHLEHEM STEEL COMPANY, Third Street, Bethlehem, Penn. 1-2-3-5-6-7
 - BIRDSBORO STEEL FOUNDRY & MACHINE CO., Birdsboro, Pa. 7
 - CALUMET STEEL CASTINGS CORP., 1636 Summer St., Hammond, Ind. 3-6-7
 - CONCRETE MACHINERY CO., P.O. Drawer 60, Hickory, N.C. Car. 2-6
 - CONTINENTAL GIN CO., 4500 5th Ave. S., Birmingham, Ala. 2
 - DAVENPORT BESLER CORP., 2305 Rockingham Road, Davenport, Iowa 2
 - DIAMOND IRON WORKS, INC., 1728 North 2nd St., Minneapolis 11, Minn. 2
 - DODGE STEEL CO., 6501 Tacony St., Philadelphia 33, Pa. 7
 - EAGLE IRON WORKS, 127 Holcombe Ave., Des Moines 4, Iowa 2-6
 - ELECTRIC STEEL FOUNDRY CO., 2141 N.W. 25th Ave., Portland 10, Ore. 5-6
 - THE FAHRALLOY CO., 150th & Lexington Aves., Harvey, Ill. 3-6
 - THE FALK CORP., 3001 W. Canal St., Milwaukee 8, Wisc.
 - THE FROG, SWITCH & MFG. CO., Carlisle, Pa. 5
 - HARDINGE CO., INC., 240 Arch St., York, Pa. 5
 - HAYNES STELLITE CO., 725 S. Lindsay, Kokomo, Ind. 5
 - IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa 2

- KENSINGTON STEEL CO., 505 Kensington Ave., Chicago 28, Ill. 5-6
- McLANAHAN & STONE CORP., Wall & Jackson Sts., Hollidaysburg, Pa. 2-5-6
- McNALLY PITTSBURGH MFG. CORP., W. Third St., Pittsburgh, Kan. 2-6
- PEKOR IRON WORKS, Ft. of E. 9th Ave., Columbus, Ga. 2-6
- PETTIBONE MULLIKEN CORP., 4700 W. Division St., Chicago 51, Ill. 5
- ROGERS IRON WORKS CO., Joplin, Mo. 2
- STOODY CO., Whittier, Calif. 5
- STAR EXPANSION PRODUCTS CO., INC., 147 Cedar St., New York 6, N.Y. 5
- STULZ-SICKLES CO., 134 Lafayette St., Newark 5, N.J. 5
- TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N.J. 5-6-7
- THOMAS FOUNDRIES, INC., 3800 10th Ave., P. O. Box 1111, Birmingham 1, Ala. 2-6
- VICTOR EQUIPMENT CO., 844 Folsom St., San Francisco 7, Calif. 6
- VULCAN IRON WORKS, 730 So. Main St., Wilkes-Barre, Pa. 6-7
- WALL COLMONOY CORP., 19345 John R St., Detroit 3, Mich. 8
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio 2-4
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif. 1-2

CEMENT

- CEMCO INDUSTRIES, INC., Gallion, Ohio
- GENERAL PORTLAND CEMENT CO., 111 West Monroe St., Chicago 3, Ill.
- HARBISON-WALKER REFRACTORIES CO., 1800 Farmers Bank Bldg., Pittsburgh 22, Pa.
- LONE STAR CEMENT CORP., 100 Park Ave., New York 17, N.Y.
- MARQUETTE CEMENT MFG CO., 20 N. Wacker Dr., Chicago 6, Ill.
- MEDUSA PORTLAND CEMENT CO., 1000 Midland Bldg., Cleveland 15, Ohio
- PENN-DIXIE CEMENT CORP., 60 E. 42nd St., New York 17, N.Y.
- UNIVERSAL ATLAS CEMENT CO., 100 Park Avenue, New York 17, N.Y.

CEMENT COOLERS (see Coolers, Bulk Cement)

CEMENT DISPERSION AGENTS

- DEWEY AND ALMY CHEMICAL CO., 62 Whittemore Ave., Cambridge 40, Mass.
- A. C. HORN CO., INC., 10th St. & 44th Ave., Long Island City 1, N.Y.
- MAGIC CHEMICAL CO., 118 Crescent St., Brockton 2, Mass.
- THE MASTER BUILDERS CO., 7016 Euclid Ave., Cleveland 3, Ohio
- MONSANTO CHEMICAL CO., PHOSPHATE DIV., 1700 S. Second St., St. Louis 4, Mo.
- REARDON INDUSTRIES, INC., 2837 Stanton Ave., Cincinnati 6, Ohio
- VERISET CORP., 150 Nassau St., New York City 38, N.Y.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

CEMENT AND MASONRY COLORS

- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- CHASE CONCRETE MACHINERY CO., 94 Grandview Avenue, Buffalo 23, New York
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- COLUMBIAN CARBON CO., MAPICO COLOR DIV., Binney & Smith Co., Dist. 380 Madison Ave., New York 17, N.Y.
- FRANK D. DAVIS CO., 2704 Santa Fe Ave., Los Angeles 58, Calif.
- A. C. HORN CO., INC., 10th St. & 44th Ave., Long Island City 1, N.Y.
- LANDERS-SEGAL COLOR CO., 78 Delevan St., Brooklyn 31, N.Y.
- THE MASTER BUILDERS CO., 7016 Euclid Ave., Cleveland 3, Ohio
- MINERAL PIGMENTS CORP., Washington Blvd., Muirkirk, Md.
- REARDON INDUSTRIES, INC., 2837 Stanton Ave., Cincinnati 6, Ohio
- J. LEE SMITH & CO., INC., 25 Ann Street, New York 38, N.Y.
- SMITH CHEMICAL & COLOR, INC., 55 John St., Brooklyn 1, N.Y.
- TAMMS INDUSTRIES, INC., 228 N. LaSalle St., Chicago 1, Ill.
- C. K. WILLIAMS & CO., 640 N. 13th St., Easton, Pa.

CEMENT PLANT, Engineers & Contractors

- BLAW-KNOX CO., Blawnox, Pittsburgh, Pa.
- BUTLER BIN CO., 945 Blackstone Ave., Waukesha, Wisc.
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- E. LEE HEIDENREICH, JR., 75 Second St., Newburgh, N. J.
- W. P. HEINEKEN, INC., 50 Broad St., New York 3, N.Y.
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- LANDIS STEEL CO., 116 West A St., P. O. Box 248, Picher, Okla.
- MACDONALD ENGR. CO., 188 W. Randolph St., Chicago 1, Ill.
- THE NICHOLSON CO., INC., 10 Rockefeller Plaza, New York 20, N.Y.
- F. L. SMIDTH & CO., 11 West 42nd St., New York 36, N.Y.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WILLARD CONCRETE MACHINERY CO., LTD., 11700 Wright Rd., Lynwood, Calif.

CEMENT PUMPS, Finished Cement (see Pumps, Cement)

CEMENT TESTING APPARATUS

- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- HUMBOLDT MFG. CO., 2014 N. Whipple St., Chicago 47, Ill.

CENTRAL MIXING PLANTS, Concrete

- BLAW-KNOX CO., Blawnox, Pittsburgh, Pa.
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.

- BUTLER BIN CO., 945 Blackstone Ave., Waukesha, Wisc.
- L. BURMEISTER CO., 4535 W. Mitchell St., Milwaukee 14, Wisc.
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- NOBLE CO., 1860 7th St., Oakland 20, Calif.
- THE T. L. SMITH CO., 2835 N. 32nd St., Milwaukee 10, Wisc.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WILLARD CONCRETE MACHINERY CO., LTD., 11700 Wright Rd., Lynwood, Calif.
- WORTHINGTON CORP., So. 2nd St., Plainfield, N. J.

CENTRIFUGES, Cement Slurry, etc.

- BIRD MACHINE COMPANY, South Walpole, Massachusetts
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- OLIVER UNITED FILTERS, INC., 2900 Glascock St., Oakland 1, Calif.
- F. L. SMIDTH & CO., 11 W. 42nd St., New York 36, N.Y.

CHAIN, Dredge and Shovel

- AMERICAN CHAIN DIVISION, AMERICAN CHAIN & CABLE CO., INC., York, Pennsylvania
- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.

CHAIN DRIVES (see Drives)

CHAIN, Elevating and Conveying

- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
- DIAMOND CHAIN CO., INC., 402 Kentucky Ave., Indianapolis 7, Ind.
- ELECTRIC STEEL FOUNDRY CO., 2141 N.W. 25th Ave., Portland 10, Ore.
- THE FAHRALLOY CO., 150th & Lexington Aves., Harvey, Ill.
- THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio
- FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- KENSINGTON STEEL CO., 505 Kensington Ave., Chicago 28, Ill.
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- MCCALL PITTSBURG MFG. CORP., W. Third St., Pittsburgh, Kan.
- MECKUM ENGINEERING, INC., Dayton Road, Ottawa, Ill.

- TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- WITTEMANN MACHINERY CO., Farmingdale, N. J.

CHAIN, Heat Exchanger

- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- F. L. SMIDTH & CO., 11 West 42nd St., New York 36, N.Y.
- VULCAN IRON WORKS, 730 S. Main St., Wilkes-Barre, Pa.

CHAIN LINKS, Fittings, Hooks, etc.

- AMERICAN CHAIN DIVISION, AMERICAN CHAIN & CABLE CO., INC., York, Pennsylvania
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- KENSINGTON STEEL CO., 505 Kensington Ave., Chicago 28, Ill.
- THE THOMAS LAUGHLIN CO., 143 Fore Street, Portland 6, Maine
- LINK-BELT CO., 307 N. Michigan Ave., Chicago 1, Ill.
- MCCALL PITTSBURG MFG. CORP., W. Third St., Pittsburgh, Kan.

CHAINS, Drag

- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
- ELECTRIC STEEL FOUNDRY CO., 2141 N.W. 25th Ave., Portland 10, Ore.
- KENSINGTON STEEL CO., 505 Kensington Ave., Chicago 28, Ill.
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- SMITH ENGINEERING WORKS, 352 Capital Dr., Milwaukee 12, Wisc.
- TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio

CHUTE LININGS, Rubber

- AAA MFG. CO., 2017 W. Clybourn St., Milwaukee 3, Wisc.
- THE AMERICAN RUBBER MFG. CO., 1145 Park Avenue, Oakland 8, Calif.
- BOSTON WOVEN HOSE & RUBBER COMPANY, P.O. Box 1071, Boston 3, Massachusetts
- CARLYLE RUBBER CO., INC., 62 Park Place, New York 7, N.Y.
- GOODALL RUBBER CO., 403 Whitehead Road, Trenton 4, N. J.
- B. F. GOODRICH CO., Akron 11, Ohio
- THE GOODYEAR TIRE & RUBBER CO., INC., 1144 E. Market St., Akron 16, Ohio
- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- PIONEER RUBBER MILLS, 353 Sacramento St., San Francisco 11, Calif.
- RAYBESTOS-MANHATTAN, INC., MANHATTAN RUBBER DIV., 61 Willett St., Passaic, N. J.
- REPUBLIC RUBBER DIV., LEE RUBBER & TIRE CORP., Albert St., Youngstown 1, Ohio
- THERMOID CO., Trenton, N. J.
- UNITED STATES RUBBER CO., 1230 Ave. of the Americas, New York 20, N.Y.

CHUTE LININGS, Other

- AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.
- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa

- REES BLOW PIPE MFG. CO., 340 Seventh St., San Francisco 3, Calif.
- STOODY CO., Whittier, Calif.
- STULZ-SICKLES CO., 134 Lafayette St., Newark 5, N. J.
- TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.
- THOMAS FOUNDRIES, INC., 3800 10th Ave., P. O. Box 1111 Birmingham 1, Ala.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio

CHUTES

- BARBER-GREENE COMPANY, 400 N. Highland Avenue, Aurora, Ill.
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- CONTINENTAL GIN CO., 4500 5th Ave. South, Birmingham, Alabama
- DIAMOND IRON WORKS, INC., 1728 North 2nd St., Minneapolis 11, Minn.
- THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio
- HENDRICK MFG. CO., 39 Dundaff St., Carbondale, Pa.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- THE KIRK & BLUM MFG. CO., 3120 Forrer St., Cincinnati 9, Ohio
- LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wisc.
- MCCALL PITTSBURG MFG. CORP., W. Third St., Pittsburgh, Kan.
- MECKUM ENGINEERING INC., Dayton Rd., Ottawa, Ill.
- REES BLOW PIPE MFG. CO., 340 Seventh St., San Francisco 3, Calif.
- THE STANDARD METAL MFG. CO., 110 Center St., Malinta, Ohio
- STRAUB MFG. CO., INC., 507 Chestnut St., Oakland 20, Calif.
- STURTEVANT MILL CO., 102 Clayton St., Dorchester, Boston 22, Mass.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio

CHUTES, Spiral

- FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- MCCALL PITTSBURG MFG. CORP., W. Third St., Pittsburgh, Kan.

CIRCUIT BREAKERS, Electric

- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.
- GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

CIRCUIT TESTERS, Electric

- ATLAS POWDER COMPANY, Wilmington 99, Delaware
- GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

CLARIFIERS, AIR (see Air Filters)

CLARIFIERS, Oil (see Air Filters)

CLASSIFIERS

1. Air
2. Electrostatic
3. Hydraulic

- BIRD MACHINE COMPANY, South Walpole, Massachusetts

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

● **COMBUSTION ENGINEERING, INC., RAYMOND DIV.**, 1315 N. Branch St., Chicago 22, Ill.
1

● **THE DEISTER CONCENTRATOR CO.**, 935 Glasgow Ave., Fort Wayne 1, Ind.
3

● **DEISTER MACHINE CO.**, 1933 East Wayne St., Fort Wayne 4, Ind.
3

● **THE DORR CO. ENGRS.**, Barry Place, Stamford, Conn.
3

● **EAGLE IRON WORKS**, 127 Holcomb Ave., Des Moines 4, Iowa
3

● **EQUIPMENT ENGINEERS INC.**, 41 Sutter St., San Francisco 4, Calif.
3

● **HARDINGE CO., INC.**, 240 Arch St., York, Pa.
1-2-3

● **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.
1-2-3

● **THE MINE & SMELTER SUPPLY CO.**, 17th & Blake, Denver 17, Colo.
3

● **OLIVER UNITED FILTERS INC.**, 2900 Glascock St., Oakland 1, Calif.
3

● **SMITH ENGINEERING WORKS**, 532 East Capitol Dr., Milwaukee 12, Wis.
3

● **STURTEVANT MILL COMPANY**, 102 Clayton St., Dorchester, Boston 22, Mass.
1

● **WESTERN MACHINERY CO.**, 760 Folsom St., San Francisco 7, Calif.
3

CLASSIFIERS, SAND (see Sand Recovery Machinery)

CLEANING MACHINES, Bag (see Bag Cleaners)

CLINKER COOLERS

1. Grate
2. Rotary

● **ALLIS-CHALMERS MFG. CO.**, 975 So. 70th St., Milwaukee 1, Wisc.
1-2

● **THE FAHRALLOY CO.**, 150th & Lexington Aves., Harvey, Ill.
1

● **FULLER CO.**, 128 Bridge St., Catonsville, Pa.
1

● **W. P. HEINEKEN, INC.**, 50 Broad St., New York 3, N.Y.
1-2

● **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.
1-2

● **MANITOWOC SHIPBUILDING, INC.**, 16th & River Sts., Manitowoc, Wis.
1-2

● **NORDBERG MFG. CO.**, 3073 S. Chase Ave., Milwaukee 1, Wisc.
2

● **SINTERING MACHINERY CORP.**, Netcong, N. J.
1

● **F. L. SMITH & CO.**, 11 West 42nd St., New York 36, N.Y.
1-2

● **TRAYLOR ENGINEERING & MFG. CO.**, Allentown, Pa.
2

● **VULCAN IRON WORKS**, 730 So. Main St., Wilkes-Barre, Pa.
2

● **WESTERN PRECIPITATION CORP.**, 1016 W. Ninth St., Los Angeles 15, Calif.
1

CLIPS, WIRE ROPE (see Wire Rope Fittings)

CLOTH, WIRE (see Wire Cloth)

CLUTCH FACINGS (see Brake Linings)

CLUTCHES

● **DODGE MFG. CORP.**, 500 S. Union St., Mishawaka, Ind.
3

● **DYNAMATIC CORP.**, 3307 14th Ave., Kenosha, Wis.
3

● **LINK-BELT COMPANY**, 307 N. Michigan Ave., Chicago 1, Ill.
3

● **STEARNS MAGNETIC INC.**, 675 S. 28th St., Milwaukee 46, Wis.
3

COAL PULVERIZING EQUIPMENT

● **AMERICAN PULVERIZER CO.**, 1245 Mackland Avenue, St. Louis, Mo.
3

● **THE BABCOCK & WILCOX CO.**, 161 W. 42nd St., New York 17, N.Y.
3

● **BONDED SCALE AND MACHINE CO.**, 2193 S. Third St., Columbus 7, Ohio
3

● **COMBUSTION ENGINEERING, INC., RAYMOND DIV.**, 1315 N. Branch St., Chicago 22, Ill.
3

● **EAGLE CRUSHER CO., INC.**, 900 Harding Way East, Galion, Ohio
3

● **GRUENDLER CRUSHER & PULV. CO.**, 2915 N. Market St., St. Louis 6, Mo.
3

● **HARDINGE CO., INC.**, 240 Arch St., York, Pa.
3

● **IOWA MFG. CO.**, 916-16th St. N.E., Cedar Rapids, Iowa
3

● **THE JEFFREY MFG. CO.**, 935 N. Fourth St., Columbus 16, Ohio
3

● **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.
3

● **MCNALLY PITTSBURG MFG. CORP.**, W. Third St., Pittsburg, Kan.
3

● **THE MINE & SMELTER SUPPLY CO.**, 17th & Blake, Denver 17, Colo.
3

● **F. L. SMITH & CO.**, 11 West 42nd St., New York 36, N.Y.
3

● **STURTEVANT MILL CO.**, 102 Clayton St., Dorchester, Boston 22, Mass.
3

● **UNIVERSAL ENGINEERING CORP.**, 625 C Ave., N.W., Cedar Rapids, Iowa
3

● **WHITING CORP.**, Harvey, Ill.
3

COAL PULVERIZING EQUIPMENT, Direct-Firing Unit Mills

● **THE BABCOCK & WILCOX CO.**, 161 W. 42nd St., New York 17, N.Y.
3

● **COMBUSTION ENGINEERING, INC., RAYMOND DIV.**, 1315 N. Branch St., Chicago 22, Ill.
3

● **HARDINGE CO., INC.**, 240 Arch St., York, Pa.
3

● **IOWA MFG. CO.**, 916-16th St. N.E., Cedar Rapids, Iowa
3

● **THE JEFFREY MFG. CO.**, 935 N. Fourth St., Columbus 16, Ohio
3

● **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.
3

● **F. L. SMITH & CO.**, 11 West 42nd St., New York 36, N.Y.
3

● **THE STRONG-SCOTT MFG. CO.**, 451 Taft St., N.E., Minneapolis 13, Minn.
3

COLORS, Cement (see Cement and Masonry Colors)

COMMUNICATIONS SYSTEMS

● **MINE SAFETY APPLIANCES CO.**, 201 N. Brodbeck Ave., Pittsburgh 8, Pa.
3

● **M&M ENGR. CORP.**, 1017 W. 23rd St., Indianapolis 23, Ind.
3

● **RADIO CORP. OF AMERICA, RCA VICTOR DIV.**, Front & Cooper Sts., Camden 2, N. J.
3

CONCENTRATING TABLES

● **THE CLEVELAND VIBRATOR CO.**, 2828 Clinton Avenue, Cleveland 13, Ohio
3

● **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington
3

● **DENVER EQUIPMENT CO.**, 1400 17th Street, P.O. Box 5268, Denver 17, Colo.
3

● **THE DEISTER CONCENTRATOR CO.**, 935 Glasgow Ave., Fort Wayne 1, Ind.
3

● **DEISTER MACHINE COMPANY**, 1933 E. Wayne St., Fort Wayne 4, Ind.
3

● **THE MINE & SMELTER SUPPLY CO.**, 17th & Blake, Denver 17, Colo.
3

● **STRAUB MFG. CO., INC.**, 507 Chestnut St., Oakland 20, Calif.
3

● **WESTERN MACHINERY CO.**, 760 Folsom St., San Francisco 7, Calif.
3

CONCRETE BLOCK (Faced)

● **MARBLE FACE BLOCKS, INC. (MARBLOX)**, Michigan Ave., Kenilworth, N. J.
3

CONCRETE BLOCK MACHINES (see Block Machines)

CONCRETE CONTROL SYSTEMS, Quality

● **C. S. JOHNSON CO., P. O. Box 71**, Champaign, Ill.
3

● **M&M ENGR. CORP.**, 1017 W. 23rd St., Indianapolis 23, Ind.
3

● **RICHARDSON SCALE CO.**, 668-698 Van Houten Ave., Clifton, N. J.
3

● **SCIENTIFIC CONCRETE SERVICE CORP.**, 724 Salem Ave., Elizabeth 3, N. J.
3

CONCRETE, Dry-Batched

● **SAKRETE, INC.**, Fisher Ave. & B&O R.R., Cincinnati 17, Ohio
3

CONCRETE MASONRY REINFORCING

● **DUR-O-WAL PRODUCTS, INC.**, P.O. Box 628, Syracuse 1, N.Y.
3

● **THE GENE OLSEN CORP.**, 401 Grace St., Adrian, Mich.
3

CONCRETE MIXERS

1. Block Plant
2. Continuous
3. Job, Portable

● **ANCHOR CONCRETE MACHINERY CO.**, 1191 Fairview Ave., Columbus 12, Ohio
1-2

● **J. W. APPEL & SON, INC.**, 831 9th St. North, St. Petersburg 2, Fla.
1

● **BERGEN MACHINE & TOOL CO., INC.**, 189 Franklin Avenue, Nutley 10, New Jersey
3

● **BESSER MFG. CO.**, Alpena, Mich.
1

● **CHAIN BELT COMPANY**, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
3

● **CHASE CONCRETE MACHINERY CO.**, 94 Grandview Ave., Buffalo 23, N.Y.
1-2-3

● **GEO. C. CHRISTOPHER & SON, INC.**, 1220 Blaine, Box 607, Wichita 1, Kansas
2-3

● **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington
1

● **CONCRETE MACHINERY CO., P.O. Drawer 60**, Hickory, N. C.
3

● **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo.
1

● **DES PLAINES CONCRETE PROD. MACHINERY**, 930 North Ave., Des Plaines, Ill.
1

● **FLEMING MFG. CO.**, Dept. C, Fleming Ave., Cuba, Mo.
1

● **GENERAL ENGINES CO., INC.**, 307 Hunter St., Gloucester City, N. J.
1

● **GILSON BROTHERS CO.**, Fredonia, Wisc.
3

● **F. C. GEORGE MACHINE CO., INC.**, 100 S. Westmoreland Drive, Orlando, Fla.
1

● **THE JAEGER MACHINE CO.**, 550 W. Spring St., Columbus 16, Ohio
3

● **TRUCK-MAN DIV., THE KNICKERBOCKER CO.**, 603 Liberty St., Jackson, Mich.
1-3

● **KWIK MIX COMPANY**, Port Washington, Wisc.
1-2-3

● **LITH-I-BAR CO.**, Holland, Mich.
1

● **MULTIPLEX MACHINERY CO., DIV. OF MULTIPACK INC.**, Fremont St., Elmore, Ohio
1

● **THE GENE OLSEN CORP.**, 401 Grace St., Adrian, Mich.
1

● **THE T. L. SMITH CO.**, 2835 N. 32nd St., Milwaukee 10, Wis.
1-2-3

● **BLYSTONE DIV. STANDARD SAND & MACH. CO.**, 549 W. Washington, Chicago 6, Ill.
1

● **STEARNS MFG. CO., INC.**, 600 E. Beecher, Adrian, Mich.
1

● **TRUAX MACHINE & TOOL CO.**, 16 Michigan St., Seattle 8, Wash.
1

● **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.
1-2-3

● **WILLARD CONCRETE MACHINERY CO., LTD.**, 11700 Wright Rd., Lynwood, Calif.
1-2-3

● **WITTEMANN MACHINERY CO.**, Farmingdale, N. J.
1

● **WORTHINGTON CORP.**, So. 2nd St., Plainfield, N. J.
1-2-3

CONCRETE MIXERS, Truck (see Bodies, Ready Mixed Concrete)

CONCRETE MIXING PLANTS (see Central Mixing Plants)

CONCRETE PAINTS AND COATINGS

● **CHASE CONCRETE MACHINERY CO.**, 94 Grandview Ave., Buffalo 23, N.Y.
3

● **E. D. CODDINGTON MFG. CO.**, 5024 N. 37th Street, Milwaukee 9, Wisconsin
3

● **A. C. HORN CO., INC.**, 10th St. & 44th Ave., Long Island City 1, N.Y.
3

● **MAGIC CHEMICAL CO.**, 118 Crescent St., Brockton 2, Mass.
3

● **THE MASTER BUILDERS CO.**, 7016 Euclid Ave., Cleveland 3, Ohio
3

● A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

MEDUSA PORTLAND CEMENT CO.,
1000 Midland Bldg., Cleveland
13, Ohio

CONCRETE PREMIX PLANTS, Dry

BUTLER BIN CO., 989 Blackstone
Ave., Waukesha, Wisc.
• **CONCRETE TRANSPORT MIXER**
CO., 4987 Flyer Ave., St. Louis 9,
Mo.

CONCRETE PRODUCTS CURING EQUIPMENT (see Kilns, Concrete Curing)

CONCRETE PRODUCTS HANDLING EQUIPMENT

ANCHOR CONCRETE MACHINERY
COMPANY, 1191 Fairview Avenue,
Columbus 12, Ohio

- **COLUMBIA MACHINE WORKS,**
107 South Grand, Vancouver,
Washington
- **CONTINENTAL GIN CO.,** 4500 5th
Ave. S., Birmingham, Ala.
- **EASTON CAR & CONSTRUCTION**
CO., Easton, Pa.
- **GERLINGER CARRIER CO.,** Dallas,
Ore.
- **F. C. GEORGE MACHINE CO.,**
INC., 100 S. Westmoreland Drive,
Orlando, Fla.
- **THE JEFFREY MFG. CO.,** 935 N.
Fourth St., Columbus 16, Ohio
- **C. S. JOHNSON CO.,** P. O. Box
71, Champaign, Ill.
- **KOEHRING CO.,** 3026 W. Con-
cordia Ave., Milwaukee 16, Wis.
- **MULTIPLEX MACHINERY CO.,**
DIV. OF MULTIPACK, INC., Frem-
ont St., Elmore, Ohio
- **THE GENE OLSEN CORP.,** 401
Grace St., Adrian, Mich.

CONCRETE SPECIALTY FORMS

- A. Bins, Tanks, Silos
1. Burial Vault
2. Cribbing
3. Curb & Gutter
4. Fence Posts and Poles
5. Floor System
6. Floor & Roof Slab
7. Garbage Disposal Unit
8. Garden & Ornamental
Furniture
9. Joist
10. Laundry Tray
11. Manhole, Curbings & Blocks
12. Partition
13. Pipe, Culvert & Sewer
14. Septic Tank
15. Sill & Lintel
16. Step, Precast
17. Tile & Conduit
18. Walls, Foundation

J. W. APPLEY & SON, INC., 831
9th St. North, St. Petersburg 2,
Fla.
3-4-5-6-9
11-14-15-16-17

- **BERG VAULT COMPANY,** 1620
Lucas Hunt Road, St. Louis 20,
Mo.
- **BERGEN MACHINE & TOOL CO.,**
INC., 189 Franklin Avenue, Nut-
ley 19, New Jersey
- **BLAW-KNOX CO.,** Blawnox, Pitts-
burgh, Pa.
- **CARPENTER MFG. CO.,** R.F.D. No.
1, Box 470, Richmond 23, Va.
- **CHASE CONCRETE MACHINERY**
CO., 94 Grandview Ave., Buffalo
23, N.Y.
3-4-8-15-16
- **COLUMBIA MACHINE WORKS,**
107 South Grand, Vancouver,
Washington
A-3-4-5-6-11
12-13-14-15-16-17-18

• **CONCRETE MACHINERY CO.,** P.O.
Drawer 60, Hickory, No. Car.
8-13-14-17

• **CONCRETE TRANSPORT MIXER**
CO., 4987 Flyer Ave., St. Louis 9,
Mo.
A

• **DES PLAINES CONCRETE PROD.**
MACHINERY, 930 North Ave.,
Des Plaines, Ill.
8-11

• **DOUGLAS FIR PLYWOOD ASSOC.,**
1119 A St., Tacoma 2, Wash.
A-5-12-18

• **FLEMING MFG. CO.,** Dept. C,
Fleming Ave., Cuba, Mo.
17

• **A. C. HORN CO., INC.,** 10th St.
& 44th Ave., Long Island City 1,
N.Y.
3

• **HOUSTON CONCRETE PIPE CO.,**
6600 Washington Ave., P. O. Box
7767, Houston 7, Texas
11-14

• **C. S. JOHNSON CO.,** P. O. Box
71, Champaign, Ill.
A

• **THE KIRK & BLUM MFG. CO.,**
3120 Farrer St., Cincinnati 9, Ohio
3-4-9-15

• **PRECASTER, INC.,** 5211 Beech St.,
Cincinnati 17, Ohio
4-6-9-15

• **QUINN WIRE & IRON WORKS,**
Boone, Iowa
4-11-13-14

• **STURTEVANT MILL COMPANY,** 102
Clayton St., Dorchester, Boston
22, Mass.
13

• **THERMOFLECTOR CORP.,** North
Sioux City, S. D.
18

• **WILLARD CONCRETE MACHINERY**
CO., LTD., 11700 Wright Rd., Lyn-
wood, Calif.
A

• **ZEIDLER CONCRETE PRODUCTS**
MACHINERY CO., Newell & Ma-
bile St., Waterloo, Iowa
13

CONCRETE SPECIALTY MACHINES

1. Chimney & Flue Block
- 1A. Drain Tile
2. Fence Post
3. Joist & Slab
- 3A. Ornamental Fence Blocks
4. Pipe, Culvert & Sewer
5. Roof Tile
6. Sill & Lintel
7. Silo Stave
8. Tile & Conduit

J. W. APPLEY & SON, INC., 831
9th St. North, St. Petersburg 2,
Fla.
1

• **BESSER MFG. CO.,** Alpena, Mich.
5-7

• **COLUMBIA MACHINE WORKS,**
107 South Grand, Vancouver,
Washington
1-2-3-6-7-8

• **CONCRETE MACHINERY CO.,** P.O.
Drawer 60, Hickory, No. Car.
4-8

• **FLEMING MFG. CO.,** Dept. C,
Fleming Ave., Cuba, Mo.
1

• **GENERAL ENGINES CO., INC.,**
307 Hunter St., Gloucester City,
N. J.
1-6

• **HOUSTON CONCRETE PIPE CO.,**
6600 Washington Ave., P.O. Box
7767, Houston 7, Texas
4

• **LITH-I-BAR CO.,** Holland, Mich.
3

• **MULTIPLEX MACHINERY CO.,**
DIV. OF MULTIPACK, INC., Frem-
ont St., Elmore, Ohio
1

• **THE GENE OLSEN CORP.,** 401
Grace St., Adrian, Mich.
7

• **QUINN WIRE & IRON WORKS,**
Boone, Iowa
4

UNIVERSAL CONCRETE PIPE CO.,
297 S. High St., Columbus 13,
Ohio
4

• **ZEIDLER CONCRETE PRODUCTS**
MACHINERY CO., Newell & Ma-
bile St., Waterloo, Iowa
4

CONCRETE WATER- PROOFING AND DAMP- PROOFING

E. D. CODDINGTON MFG. CO.,
5024 N. 37th Street, Milwaukee 9,
Wisc.

• **COLUMBIA MACHINE WORKS,**
107 South Grand, Vancouver,
Washington

• **DEWEY AND ALMY CHEMICAL**
CO., 62 Whittemore Ave., Cam-
bridge 40, Mass.

• **A. C. HORN CO., INC.,** 10th St.
& 44th Ave., Long Island City 1,
N.Y.

• **THE MASTER BUILDERS CO.,** 7016
Euclid Ave., Cleveland 3, Ohio

• **MEDUSA PORTLAND CEMENT CO.,**
1000 Midland Bldg., Cleveland 15,
Ohio

• **REARDON INDUSTRIES, INC.,** 2837
Stanton Ave., Cincinnati 6, Ohio

• **TAMM INDUSTRIES, INC.,** 228 N.
LaSalle St., Chicago 1, Ill.

CONDUIT, Electrical

JOHNS-MANVILLE, 22 E. 40th
St., New York 16, N.Y.

CONTROL SYSTEMS

1. Draft
2. Pressure
3. Temperature

• **BAILEY METER CO.,** 1050 Ivanhoe
Road, Cleveland 10, Ohio
1-2-3

• **THE FOXBORO CO.,** 38 Neponset
Ave., Foxboro, Mass.
1-2-3

• **THE HAYS CORP.,** 742 East 8th
St., Michigan City 21, Ind.
1-2-3

CONTROLS, Bin and Tank Level

• **THE BIN-DICATOR COMPANY,**
13946 Kercheval Avenue, Detroit
15, Michigan

• **BUTLER BIN CO.,** 945 Blackstone
Ave., Waukesha, Wisc.

• **THE FOXBORO CO.,** 38 Neponset
Ave., Foxboro, Mass.

• **THE HAYS CORP.,** 742 E. 8th St.,
Michigan City 21, Ind.

• **C. S. JOHNSON CO.,** P. O. Box
71, Champaign, Ill.

• **KENNEDY-VAN SAUN MFG. &**
ENG. CORP., 2 Park Ave., New
York 16, N.Y.

• **RICHARDSON SCALE CO.,** 668-698
Van Houten Ave., Clifton, N. J.

• **SYNTRON COMPANY,** 450 Lexing-
ton Ave., Homer City, Pa.

CONVERTERS, Electric

• **ALLIS-CHALMERS MFG. CO.,** 975
So. 70th St., Milwaukee 1, Wisc.

• **GENERAL ELECTRIC CO.,** 1 River
Road, Schenectady 5, N.Y.

• **SYNTRON CO.,** 450 Lexington
Ave., Homer City, Pa.

CONVEYOR BELT TRIP- PERS

• **BARBER-GREENE COMPANY,** 400
N. Highland Avenue, Aurora, Ill.

• **BODINSON MFG. CO.,** 2401 Bay-
shore Blvd., San Francisco 24,
Calif.

• **CHAIN BELT COMPANY,** 4649 W.
Greenfield Ave., Milwaukee 1,
Wisc.

• **CONTINENTAL GIN CO.,** 4500 5th
Ave. S., Birmingham, Ala.

• **HEWITT-ROBINS, INC.,** 666 Glen-
brook Road, Stamford, Conn.

• **IOWA MFG. CO.,** 916-16th St.
N.E., Cedar Rapids, Iowa

• **THE JEFFREY MFG. CO.,** 935 N.
Fourth St., Columbus 16, Ohio

• **LINK-BELT COMPANY,** 307 N.
Michigan Ave., Chicago 1, Ill.

• **LIPPMANN ENGINEERING WORKS,**
4603 W. Mitchell St., Milwaukee
14, Wisc.

• **STEPHENS-ADAMSON MFG. CO.,**
Ridgeway Ave., Aurora, Ill.

• **TRANSALL, INCORPORATED,** 109
N. 11th St., Birmingham 4, Ala.

• **UNIVERSAL ENGINEERING CORP.,**
625 C Ave. N.W., Cedar Rapids,
Iowa

• **WEBSTER MFG. CO.,** West Hall
St., Tiffin, Ohio

CONVEYOR IDLERS, Belt

• **BARBER-GREENE CO.,** 400 N.
Highland Ave., Aurora, Ill.

• **BODINSON MFG. CO.,** 2401 Bay-
shore Blvd., San Francisco 24,
Calif.

• **BONDED SCALE AND MACHINE**
CO., 2193 S. Third St., Columbus
7, Ohio

• **CHAIN BELT COMPANY,** 4649 W.
Greenfield Ave., Milwaukee 1,
Wisc.

• **CONTINENTAL GIN CO.,** 4500 5th
Ave. S., Birmingham, Ala.

• **DIAMOND IRON WORKS, INC.,**
1728 North 2nd St., Minneapolis
11, Minn.

• **THE FAIRFIELD ENGINEERING**
CO., 324 Barnhart St., Marion,
Ohio

• **HEWITT-ROBINS, INC.,** 666 Glen-
brook Road, Stamford, Conn.

• **IOWA MFG. CO.,** 916-16th St.
N.E., Cedar Rapids, Iowa

• **THE JEFFREY MFG. CO.,** 935 N.
Fourth St., Columbus 16, Ohio

• **LINK-BELT COMPANY,** 307 N.
Michigan Ave., Chicago 1, Ill.

• **LIPPMANN ENGINEERING WORKS,**
4603 W. Mitchell St., Milwaukee
14, Wisc.

• **E. F. MARSH ENGR. CO.,** 4324 W.
Clayton Ave., St. Louis 10, Mo.

• **PIONEER ENGINEERING WORKS,**
INC., 1515 Central Ave. N.E.,
Minneapolis 13, Minn.

• **ROGERS IRON WORKS, CO.,** Jop-
lin, Mo.

• **SMITH ENGINEERING WORKS,** 532
E. Capitol Dr., Milwaukee 12,
Wisc.

• **THE STANDARD METAL MFG. CO.,**
110 Center St., Malinta, Ohio

• **STEPHENS-ADAMSON MFG. CO.,**
Ridgeway Ave., Aurora, Ill.

• **TRANSALL, INCORPORATED,** 109
N. 11th St., Birmingham 4, Ala.

• **TRIANGLE ENGINEERING CO.,**
2948 W. 26th St., Chicago 23, Ill.

• **UNIVERSAL ENGINEERING CORP.,**
625 C Ave. N.W., Cedar Rapids,
Iowa

• **WEBSTER MFG. CO.,** West Hall
St., Tiffin, Ohio

CONVEYORS, Materials Handling

1. Aeration
2. Air
3. Apron
4. Belt
5. Belt, Portable
6. Drag
7. Overhead Bridge
8. Pan
9. Screw
10. Vibrating
11. Weight Recording

• **AJAX FLEXIBLE COUPLING CO.,**
INC., Westfield, N.Y.
8-10

• **THE AMERICAN RUBBER MFG.**
CO., 1145 Park Avenue, Oakland
8, Calif.
4

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

● **BALDWIN-LIMA-HAMILTON CORP.**, Construction Equipment Div., South Main St., Lima, Ohio 4-5

● **BARBER-GREENE CO.**, 400 N. Highland Ave., Aurora, Ill. 3-4-5

● **BAUGHMAN MFG. CO., INC.**, Shipman Road, Jerseyville, Ill. 4-5-9

● **BEAUMONT BIRCH CO.**, 1505 Race St., Philadelphia 2, Pa. 2-3-4-6-9-10-11

● **BODINSON MFG. CO.**, 2401 Bayshore Blvd., San Francisco 24, Calif. 3-4-6-8

● **BONDED SCALE AND MACHINE CO.**, 2193 S. Third St., Columbus 7, Ohio 4-5-6

● **BROOKS EQUIPMENT & MFG. CO.**, 2018 Davenport Road S.E., Knoxville 8, Tenn. 3

● **BUTLER BIN CO.**, 945 Blackstone Ave., Waukesha, Wisc. 4-9

● **CARRIER CONVEYOR CORP.**, 2144 Frankfort Avenue, Louisville 6, Ky. 18

● **CHAIN BELT COMPANY**, 4649 W. Greenfield Ave., Milwaukee 1, Wisc. 3-4-6-8

● **THE COLORADO FUEL AND IRON CORP.**, Continental Oil Building, Denver 2, Colorado 3-4

● **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington 4

● **COMBUSTION ENGINEERING, INC., RAYMOND DIV.**, 1315 N. Branch St., Chicago 22, Ill. 2

● **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo. 4-5-9

● **CONTINENTAL GIN CO.**, 4500 5th Ave. S., Birmingham, Ala. 3-4-6-9-10

● **DENVER EQUIPMENT CO.**, 1400 17th St., P.O. Box 5268, Denver 17, Colo. 3

● **DIAMOND IRON WORKS, INC.**, 1728 North 2nd St., Minneapolis 11, Minn. 3-4-5

● **EAGLE CRUSHER CO., INC.**, 900 Harding Way East, Galion, Ohio 3-4

● **THE FAHRALLOY CO.**, 150th & Lexington Aves., Harvey, Ill. 6

● **THE FAIRFIELD ENGINEERING CO.**, 324 Barnhart St., Marion, Ohio 3-4-5-6-7-9-11

● **FANNING SCHUETT ENGINEERING CO.**, 4325 N. Third Street, Philadelphia 40, Pa. 3-4-5-6-7-8-9

● **FLEXOVEYOR MFG. CO.**, 1220 S. Acoma St., Denver 19, Colo. 4

● **FULLER CO.**, 128 Bridge St., Catsasqua, Pa. 1-2

● **GENERAL ENGINES CO., INC.**, 307 Hunter St., Gloucester City, N. J. 4

● **F. C. GEORGE MACHINE CO., INC.**, 100 S. Westmoreland Drive, Orlando, Fla. 4

● **GEO HAISS MFG. CO., INC.**, Div. Pettibone Mulliken Corp., 350 Fifth Ave., New York 1, N.Y. 3-4-5-6

● **HARDINGE CO., INC.**, 240 Arch St., York, Pa. 2

● **HERCULES STEEL PROD. CORP.**, Sherman Street, Galion, Ohio 3

● **HEWITT-ROBINS, INC.**, 666 Glenbrook Road, Stamford, Conn. 4-5-10

● **HOUSTON CONCRETE PIPE CO.**, 6600 Washington Ave., P.O. Box 7767, Houston 7, Texas 4

● **IOWA MFG. CO.**, 916-16th St. N.E., Cedar Rapids, Iowa 3-4-5

● **THE JEFFREY MFG. CO.**, 935 N. Fourth St., Columbus 16, Ohio 3-4-6-8-9-10-11

● **C. S. JOHNSON CO., P.O. Box 71**, Champaign, Ill. 1-9-11

● **JOHNSON & HOEHLER, INC.**, P.O. Box 102, Lansdowne, Pa. 4

● **JOY MFG. CO.**, Henry W. Oliver Bldg., Pittsburgh 22, Pa. 4

● **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y. 2-3-4-5-6-7-8-9-10-11

● **KOLMAN MFG. CO.**, West 12th St. Rd., Sioux Falls, S. D., 4-5

● **LANDIS STEEL CO.**, 116 West A St., P.O. Box 248, Picher, Okla. 4

● **LINK-BELT COMPANY**, 307 N. Michigan Ave., Chicago 1, Ill. 1-3-4-6-7-8-9-10

● **LIPPMANN ENGINEERING WORKS**, 4603 W. Mitchell St., Milwaukee 14, Wisc. 3-4-5-6-8-9-10-11

● **E. F. MARSH ENGR. CO.**, 4324 W. Clayton Ave., St. Louis 10, Mo. 3-4-5

● **McLANAHAN & STONE CORP.**, Wall & Jackson Sts., Hallidaysburg, Pa. 4-9

● **MERRICK SCALE MFG. CO.**, 180 Autumn St., Passaic, N. J. 11

● **NAYLOR PIPE CO.**, 1237 E. 92nd St., Chicago 19, Ill. 2

● **NOBLE CO.**, 1860 7th St., Oakland 20, Calif. 4

● **THE OLIVER CORP., A. B. FARQUHAR DIV.**, 142 N. Duke St., York, Pa. 4-5-6

● **PIONEER ENGINEERING WORKS, INC.**, 1515 Central Ave. N.E., Minneapolis 13, Minn. 3-4-5-8

● **PIONEER RUBBER MILLS**, 353 Sacramento St., San Francisco 11, Calif. 4-5

● **REES BLOW PIPE MFG. CO.**, 340 Seventh St., San Francisco 3, Calif. 2-4-6

● **ROGERS IRON WORKS CO.**, Joplin, Mo. 3-4-5

● **SAUERMAN BROS., INC.**, 530 S. Clinton St., Chicago 7, Ill. 6

● **SIMPLICITY ENGINEERING CO.**, 213 S. Oak St., Durand, Mich. 8-10

● **SINTERING MACHINERY CORP.**, Netcong, N. J. 11

● **F. L. SMIDTH & CO.**, 11 West 42nd St., New York 36, N.Y. 2-10

● **SMITH ENGINEERING WORKS**, 532 East Capitol Dr., Milwaukee 12, Wisc. 3-4

● **SPROUT WALDRON & CO., INC.**, Muncy, Pa. 2-4-6-9

● **STEPHENS-ADAMSON MFG. CO.**, Ridgeway Ave., Aurora, Ill. 3-4-6-7-8-9-10-11

● **ST. REGIS PAPER CO.**, 230 Park Ave., New York 17, N.Y. 4-9-10-11

● **SYNTRON COMPANY**, 450 Lexington Ave., Homer City, Pa. 18

● **TRANSALL INCORPORATED**, 109 N. 11th St., Birmingham 4, Ala. 4

● **TRIANGLE ENGINEERING CO.**, 2948 W. 26th St., Chicago 23, Ill. 3-4-5-6-9

● **UNIVERSAL ENGINEERING CORP.**, 625 C. Ave. N.W., Cedar Rapids, Iowa 3-4-5

● **UNIVERSAL ROAD MACHINERY CO.**, 27 Emerick St., Kingston, N.Y. 3-4

● **UNITED STATES RUBBER CO.**, 1230 Ave. of the Americas, New York 20, N.Y. 4

● **VIBRO-PLUS PRODUCTS, INC.**, 54-11 Queens Blvd., Woodside 77, N.Y. 18

● **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y. 3-4-9

● **WEBSTER MFG. CO.**, West Hall St., Tiffin, Ohio 3-4-6-8-9

● **WESTERN MACHINERY CO.**, 760 Folsom St., San Francisco 7, Calif. 4

● **WILLARD CONCRETE MACHINERY CO., LTD.**, 11700 Wright Rd., Lynwood, Calif. 4

● **WILLIAMS PATENT CRUSHER & PULVERIZER CO., INC.**, 813 Montgomery St., St. Louis 6, Mo. 2-9

● **WITTEMANN MACHINERY CO.**, Farmingdale, N. J. 1

● **ZEIDLER CONCRETE PRODUCTS MACHINERY CO.**, Newell & Mobile St., Waterloo, Iowa 4-6

COOLERS, Bulk Cement

● **FULLER CO.**, 128 Bridge St., Catsasqua, Pa. 1-2

● **W. P. HEINEKEN, INC.**, 50 Broad St., New York 3, N.Y. 1-2-3

● **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y. 2

● **F. L. SMIDTH & CO.**, 11 West 42nd St., New York 36, N.Y. 2

● **TRAYLOR ENGINEERING & MFG. CO.**, Allentown, Pa. 1-3

● **WESTERN PRECIPITATION CORP.**, 1016 W. Ninth St., Los Angeles 15, Calif. 1-3

COOLERS, Cement Clinker (see Clinker Coolers)

CORRECTING, BASINS, Slurry

● **THE DORR CO., ENGRS.**, Barry Place, Stamford, Conn. 1-2

● **F. L. SMIDTH & CO.**, 11 West 42nd St., New York 36, N.Y. 2

COUPLINGS, Hose (see Hose Fittings)

COUPLINGS, Pipe

● **CONTINENTAL GIN CO.**, 4500 5th Ave. South, Birmingham, Alabama 1

● **B. FOSTER CO.**, P. O. Box 1647, Pittsburgh 30, Pa. 1

COUPLINGS, Shaft, Flexible Shaft (see Drives)

CRANE, Boom, Cable Stabilizer

● **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y. 2

● **"QUICK-WAY" TRUCK SHOVEL CO.**, 4150 Josephine St., Denver, Colo. 1

CRANES, Crawler

1. Diesel
2. Electric
3. Gasoline

● **AMERICAN HOIST & DERRICK CO.**, 63 S. Robert St., St. Paul 1, Minn. 1-2-3

● **BALDWIN-LIMA-HAMILTON CORP.**, Construction Equipment Div., South Main St., Lima, Ohio 1-2-3

● **BAY CITY SHOVELS, INC.**, Bay City, Michigan 1-2-3

● **BUCYRUS-ERIE CO.**, South Milwaukee, Wisc. 1-2-3

● **CLARK EQUIPMENT CO.**, Construction Machinery Div., Springfield Place, Battle Creek 60, Mich. 1-3

● **GARWOOD INDUSTRIES, INC.**, Findlay, Ohio 3

● **HANSON CLUTCH & MACHINE CO.**, Tiffin, Ohio 1-3

● **HARNISCHFEGGER CORP.**, 4400 W. National Ave., Milwaukee 46, Wisc. 1-2-3

● **HYSTER COMPANY**, 2918 N.E. Clackamas St., Portland 8, Ore. 1

● **INSLEY MFG. CORP.**, 801 N. Olney St., Indianapolis 6, Ind. 1-2-3

● **INTERNATIONAL HARVESTER CO.**, 180 N. Michigan Ave., Chicago 1, Ill. 3

● **KOEHRING COMPANY**, 3026 W. Concordia Ave., Milwaukee 16, Wisc. 1-2-3

● **LINK-BELT SPEEDER CORP.**, 1201 Sixth St., S.W., Cedar Rapids, Iowa 1-2-3

● **LITTLE GIANT CRANE & SHOVEL, INC.**, East 16th & Howard Drive, Des Moines 13, Iowa 1-2-3

● **MANITOWOC ENGINEERING CORP.**, 16th & River Sts., Manitowoc, Wisc. 1-3

● **MARION POWER SHOVEL CO.**, 617 W. Center St., Marion, Ohio 1-2-3

● **NORTHWEST ENGINEERING CO.**, 135 S. LaSalle St., Chicago 3, Ill. 1-2-3

● **OSGOOD-GENERAL**, P. O. Box 515, (Osgood & Cheney Ave.), Marion, Ohio 1-2-3

● **SCHILD BANTAM CO.**, Park St., Waverly, Iowa 1-2-3

● **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc. 1-2-3

● **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y. 1-2-3

CRANES, Locomotive

1. Diesel
2. Electric
3. Gasoline
4. Electric Generator

● **AMERICAN HOIST & DERRICK CO.**, 63 S. Robert St., St. Paul 1, Minn. 1-2-3-4

● **OHIO LOCOMOTIVE CRANE CO.**, Bucyrus, Ohio 1-2-3-4

● **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y. 1-2-3-4

CRANES, Truck-Mounted

● **AMERICAN HOIST & DERRICK CO.**, 63 S. Robert St., St. Paul 1, Minn.

● A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

- **BALDWIN-LIMA-HAMILTON CORP.**, Construction Equipment Div., South Main St., Lima, Ohio 4-5-7
- **BAY CITY SHOVELS, INC.**, Bay City, Michigan
- **BUCHYRUS-ERIE CO.**, South Milwaukee, Wisc.
- **CLARK EQUIPMENT CO.**, Construction Machinery Div., Springfield Place, Battle Creek 60, Mich.
- **GAR WOOD INDUSTRIES, INC.**, Findlay, Ohio
- **HANSON CLUTCH & MACHINE CO.**, Tiffin, Ohio 4-5-7
- **HARNISCHFEGGER CORP.**, 4400 W. National Ave., Milwaukee 46, Wisc.
- **HYSTER CO.**, 2918 N.E. Clackamas St., Portland 8, Ore.
- **INSLEY MFG. CORP.**, 81 N. Olney St., Indianapolis 6, Ind.
- **KOEHRING COMPANY**, 3026 W. Concordia Ave., Milwaukee 16, Wisc.
- **LINK-BELT SPEEDER CORP.**, 1201 Sixth St., S.W., Cedar Rapids, Iowa
- **LITTLE GIANT CRANE & SHOVEL, INC.**, East 14th & Howard Drive, Des Moines 13, Iowa
- **NORTHWEST ENGINEERING CO.**, 135 S. LaSalle St., Chicago 3, Ill.
- **OSGOOD-GENERAL, P. O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio
- **PETTIBONE MULLIKEN CORP.**, 4700 W. Division St., Chicago 51, Ill.
- **"QUICK-WAY" TRUCK SHOVEL CO.**, 4150 Josephine St., Denver, Colo.
- **SCHILD BANTAM CO.**, Park St., Waverly, Iowa
- **TRACTOR & EQUIPMENT CO.**, 10000 S. Ridgeland Ave., Oak Lawn, Ill.
- **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wis.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

CRANES, Hammer Head, Ship, etc.

- **AMERICAN HOIST & DERRICK CO.**, 63 S. Robert St., St. Paul 1, Minn.
- **NORTHWEST ENGINEERING CO.**, 135 S. LaSalle St., Chicago 3, Ill.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.
- **WELLMAN ENGINEERING CO.**, 7000 Central Ave., Cleveland 4, Ohio

CRIMPERS, BLASTING CAP (see Blasting Supplies)

CRUSHERS

1. Gyratory
 2. Hammer
 3. Impact
 4. Jaw
 5. Laboratory
 6. Ring-Roll
 7. Roll
 8. Rotor
- **ALLIS-CHALMERS MFG. CO.**, 975 So. 70th St., Milwaukee 1, Wisc. 1-2-3-4-5-7
 - **AMERICAN BRAKE SHOE COMPANY**, 230 Park Avenue, New York 17, New York 1-2-3-4-7
 - **AMERICAN PULVERIZER COMPANY**, 1245 Macklind Avenue, St. Louis 10, Missouri 2-6
 - **BACON-PIETSCHE CO., INC.**, 75 North Maple Avenue, Ridgewood, N.J. 4-5
 - **BALDWIN-LIMA-HAMILTON CORP.**, Eddystone Div., Philadelphia 42, Pa. 4-7

- **BIRDSBORO STEEL FOUNDRY & MACHINE COMPANY**, Birdsboro, Penna. 4-5-7
- **BONDED SCALE AND MACHINE CO.**, 2193 S. Third St., Columbus 7, Ohio 7
- **BROOKS EQUIPMENT & MFG. CO.**, 2018 Davenport Road S.E., Knoxville 8, Tenn. 2-4
- **DENVER EQUIPMENT CO.**, 1400 17th Street, P.O. Box 5268, Denver 17, Colo. 4-5-7
- **DIAMOND IRON WORKS, INC.**, 1728 North 2nd St., Minneapolis 11, Minn. 2-4-7
- **EAGLE CRUSHER CO., INC.**, 900 Harding Way East, Galion, Ohio 2-3-4
- **THE FAIRFIELD ENGINEERING CO.**, 324 Barnhart St., Marion, Ohio 2
- **THE GALIGHER CO.**, 545 W. 8th South St., Salt Lake City 4, Utah 5
- **GILSON BROTHERS CO.**, Fredonia, Wisc.
- **GRUENDLER CRUSHER & PULV. CO.**, 2915 N. Market St., St. Louis 6, Mo. 2-3-4-5-6-7
- **HAMMERMILLS, INC.**, (Subsidiary of Pettibone Mulliken Corp.), 4700 W. Division St., Chicago 40, Ill. 2
- **W. P. HEINEKEN, INC.**, 50 Broad St., New York 3, N.Y. 1-2-3-4-5-6-7
- **INTERNATIONAL HARVESTER CO.**, 180 N. Michigan Ave., Chicago 1, Ill. 2
- **IOWA MFG. CO.**, 916-16th St. N.E., Cedar Rapids, Iowa 2-3-4-7
- **THE JEFFREY MFG. CO.**, 935 N. Fourth St., Columbus 16, Ohio 2-3-6-7
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y. 1-2-3-4-5-6-7
- **LIPPMANN ENGINEERING WORKS**, 4603 W. Mitchell St., Milwaukee 14, Wis. 1-2-3-4-7
- **McLANAHAN & STONE CORP.**, Wall & Jackson Sts., Hollidaysburg, Pa. 4-7
- **McNALLY PITTSBURG MFG. CORP.**, W. Third St., Pittsburgh, Kan. 4-7
- **MILLER EQUIPMENT CO., INC.**, P. O. Box 1566, Salisbury, No. Car. 2-7
- **THE MINE & SMELTER SUPPLY CO.**, 17th & Blake, Denver 17, Colo. 5
- **NORDBERG MFG. CO.**, 3073 S. Chase Ave., Milwaukee 1, Wisc. 1
- **PENNSYLVANIA CRUSHER CO.**, 1710 Liberty Trust Bldg., Philadelphia 7, Pa. 1-2-3-4-5-6-7
- **PIONEER ENGINEERING WORKS, INC.**, 1515 Central Ave. N.E., Minneapolis 13, Minn. 4-7
- **ROGERS IRON WORKS CO.**, Joplin, Mo. 2-4-7
- **SMITH ENGINEERING WORKS**, 532 East Capitol Dr., Milwaukee 12, Wis. 1-2-3-4-5-6-7
- **SPROUT WALDRON & CO., INC.**, Muncy, Pa. 2-5
- **STEPHENS-ADAMSON MFG. CO.**, Ridgeway Ave., Aurora, Ill. 4
- **STRAUB MFG. CO., INC.**, 507 Chestnut St., Oakland 20, Calif. 1-4-5

- **STURTEVANT MILL CO.**, 102 Clayton St., Dorchester, Boston 22, Mass. 2-4-5-6-7
- **TRAYLOR ENGINEERING & MFG. CO.**, Allentown, Pa. 1-4
- **UNIVERSAL ENGINEERING CORP.**, 625 C Ave. N.W., Cedar Rapids, Iowa 2-3-4-5-7
- **UNIVERSAL ROAD MACHINERY CO.**, 27 Emerick St., Kingston, N.Y. 4
- **WALDRIP ENGINEERING CO.**, 11810 Center St., Hollydale, Calif. 8
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y. 1-2-3-4-5-6-7
- **WILLIAMS PATENT CRUSHER & PULVERIZER CO., INC.**, 813 Montgomery St., St. Louis 6, Mo. 2-3-5-6-7

CRUSHING AND SCREENING PLANTS, Complete

- **ALLIS-CHALMERS MFG. CO.**, 975 So. 70th St., Milwaukee 1, Wisc.
- **ANCHOR CONCRETE MACHINERY CO.**, 1191 Fairview Ave., Columbus 12, Ohio
- **BALDWIN-LIMA-HAMILTON CORP.**, Construction Equipment Div., South Main St., Lima, Ohio
- **BODINSON MFG. CO.**, 2401 Bayshore Blvd., San Francisco 24, Calif.
- **BONDED SCALE AND MACHINE CO.**, 2193 S. Third St., Columbus 7, Ohio
- **DENVER EQUIPMENT CO.**, 1400 17th St., P.O. Box 5268, Denver 17, Colo.
- **DIAMOND IRON WORKS, INC.**, 1728 North 2nd St., Minneapolis 11, Minn.
- **EAGLE CRUSHER CO., INC.**, 900 Harding Way East, Galion, Ohio
- **GRUENDLER CRUSHER & PULV. CO.**, 2915 N. Market St., St. Louis 6, Mo.
- **W. P. HEINEKEN, INC.**, 50 Broad St., New York 3, N.Y.
- **IOWA MFG. CO.**, 916-16th St. N.E., Cedar Rapids, Iowa
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.
- **LINK-BELT COMPANY**, 307 N. Michigan Ave., Chicago 1, Ill.
- **LIPPMANN ENGINEERING WORKS**, 4603 W. Mitchell St., Milwaukee 14, Wis.
- **E. F. MARSH ENGR. CO.**, 4324 W. Clayton Ave., St. Louis 10, Mo.
- **McLANAHAN & STONE CORP.**, Wall & Jackson Sts., Hollidaysburg, Pa.
- **McNALLY PITTSBURG MFG. CORP.**, W. Third St., Pittsburgh, Kan.
- **MECKUM ENGINEERING, INC.**, Dayton Rd., Ottawa, Ill.
- **THE NICHOLSON CO., INC.**, 10 Rockefeller Plaza, New York 20, N.Y.
- **PIONEER ENGINEERING WORKS, INC.**, 1515 Central Ave. N.E., Minneapolis 13, Minn.
- **ROGERS IRON WORKS CO.**, Joplin, Mo.
- **SMITH ENGINEERING WORKS**, 532 East Capitol Dr., Milwaukee 12, Wis.
- **STEPHENS-ADAMSON MFG. CO.**, Ridgeway Ave., Aurora, Ill.
- **STRAUB MFG. CO., INC.**, 507 Chestnut St., Oakland 20, Calif.
- **UNIVERSAL ENGINEERING CORP.**, 625 C Ave. N.W., Cedar Rapids, Iowa
- **UNIVERSAL ROAD MACHINERY CO.**, 27 Emerick St., Kingston, N.Y.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.
- **WILLIAMS PATENT CRUSHER & PULVERIZER CO., INC.**, 813 Montgomery St., St. Louis 6, Mo.

CRUSHING AND SCREENING PLANTS, Mobile Mounted

- **BALDWIN-LIMA-HAMILTON CORP.**, Construction Equipment Div., South Main St., Lima, Ohio
- **BODINSON MFG. CO.**, 2401 Bayshore Blvd., San Francisco 24, Calif.
- **BONDED SCALE AND MACHINE CO.**, 2193 S. Third St., Columbus 7, Ohio
- **DEWEY AND ALMY CHEMICAL CO.**, 62 Whittemore Ave., Cambridge 40, Mass.
- **DIAMOND IRON WORKS, INC.**, 1728 North 2nd St., Minneapolis 11, Minn.
- **EAGLE CRUSHER CO., INC.**, 900 Harding Way East, Galion, Ohio
- **GRUENDLER CRUSHER & PULV. CO.**, 2915 N. Market St., St. Louis 6, Mo.
- **IOWA MFG. CO.**, 916-16th St. N.E., Cedar Rapids, Iowa
- **C. S. JOHNSON CO.**, P. O. Box 71, Champaign, Ill.
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.
- **LIPPMANN ENGINEERING WORKS**, 4603 W. Mitchell St., Milwaukee 14, Wis.
- **PIONEER ENGINEERING WORKS, INC.**, 1515 Central Ave. N.E., Minneapolis 13, Minn.
- **ROGERS IRON WORKS CO.**, Joplin, Mo.
- **SMITH ENGINEERING WORKS**, 532 East Capitol Dr., Milwaukee 12, Wis.
- **SEPARATOR DIV., SOUTHWESTERN ENGINEERING CO.**, 4800 S. Santa Fe Ave., Los Angeles 58, Calif.
- **STRAUB MFG. CO., INC.**, 507 Chestnut St., Oakland 20, Calif.
- **UNIVERSAL ENGINEERING CORP.**, 625 C Ave. N.W., Cedar Rapids, Iowa
- **UNIVERSAL ROAD MACHINERY CO.**, 27 Emerick St., Kingston, N.Y.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.
- **WILLIAMS PATENT CRUSHER & PULVERIZER CO., INC.**, 813 Montgomery St., St. Louis 6, Mo.

CUPOLAS, Rock Wool (see Rock Wool Cupolas and Equipment)

CURING COMPOUNDS, Concrete

- **AUTOLINE LUBRICANTS CO.**, PROTEX INDUSTRIAL DIV., 1331 W. Evans, Denver 9, Ohio
- **DEWEY AND ALMY CHEMICAL CO.**, 62 Whittemore Ave., Cambridge 40, Mass.
- **THE MASTER BUILDERS CO.**, 7016 Euclid Ave., Cleveland 3, Ohio
- **SOLVAY PROCESS DIV., ALLIED CHEMICAL & DYE CORP.**, 61 Broadway, N. New York 6, N.Y.

CURING ROOM DOORS

- **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington
- **MOORE DRY KILN CO.**, 1220 W. State St., Jacksonville 1, Fla.

CURING ROOM HEATERS

- **CHAMPION FUEL ENGINEERING CO.**, P. O. Box 3943, Detroit 27, Michigan
- **LITTLEFORD BROS., INC.**, 453 E. Pearl St., Cincinnati 2, Ohio
- **PRAT-DANIEL CORP.**, 2 Meadow St., So. Norwalk, Conn.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

CUTTER-HEADS, Dredging

- **EAGLE IRON WORKS**, 127 Holcomb Ave., Des Moines 4, Iowa
- **MECKUM ENGINEERING, INC.**, Dayton Rd., Ottawa, Ill.
- **MORRIS MACHINE WORKS, E.** Genesee St., Baldwinsville, N.Y.
- **TAYLOR-WHARTON IRON & STEEL CO.**, High Bridge, N. J.

CUTTERS, Fuse (see Blasting Supplies)

CUTTING WHEELS, Abrasive for Concrete

- **CLIPPER MFG. CO.**, 2800 Warwick, Kansas City 8, Mo.
- **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo.
- **RAYBESTOS-MANHATTAN, INC.**, MANHATTAN RUBBER DIV., 61 Willett St., Passaic, N. J.
- **SIMONDS ABRASIVE CO.**, Tacony & Fraley Sts., Philadelphia 37, Pa.

D

DEHYDRATORS (see Slurry Thickeners)

DERRICKS, Barge

- **AMERICAN HOIST & DERRICK CO.**, 63 S. Robert St., St. Paul 1, Minn.
- **DRAVO CORP.**, Dravo Bldg., Fifth & Liberty Aves., Pittsburgh 22, Pa.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

DERRICKS, Stiff-Leg and Guy

- **AMERICAN HOIST & DERRICK CO.**, 63 S. Robert St., St. Paul 1, Minn.
- **DRAVO CORP.**, Dravo Bldg., Fifth & Liberty Aves., Pittsburgh 22, Pa.
- **R. C. STANHOPE, INC.**, 60 E. 42nd St., New York, N.Y.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

DETONATORS (see Blasting Supplies)

DEWATERING EQUIPMENT, Sand (see Sand Recovery Machinery)

DIAMOND DRILLING MACHINES

- **SPRAGUE & HENWOOD, INC.**, 221 W. Olive St., Scranton 2, Pa.

DIAPHRAGMS, Pumps, Rubber

- **A & A MFG. CO.**, 2017 W. Clybourn St., Milwaukee 3, Wisc.
- **CARLYLE RUBBER CO., INC.**, 62 Park Place, New York 7, N.Y.
- **DENVER EQUIPMENT CO.**, 1400 17th St., P. O. Box 5268, Denver 17, Colo.
- **GOODALL RUBBER CO.**, 403 Whitehead Road, Trenton 4, N. J.
- **THE JAEGER MACHINE CO.**, 350 W. Spring St., Columbus 16, Ohio
- **REPUBLIC RUBBER DIV.**, Lee Rubber & Tire Corp., Albert Street, Youngstown 1, Ohio
- **RAYBESTOS-MANHATTAN, INC.**, MANHATTAN RUBBER DIV., 61 Willett St., Passaic, N. J.
- **UNITED STATES RUBBER CO.**, 1230 Ave. of the Americas, New York 20, N.Y.
- **WESTERN MACHINERY CO.**, 760 Folsom St., San Francisco 7, Calif.

DIESEL ENGINES, Automotive

- **THE BUDA COMPANY**, 154th & Commercial, Harvey, Illinois
- **CUMMINS ENGINE CO., INC.**, Columbus, Ind.
- **GENERAL MOTORS CORP.**, DETROIT DIESEL ENGINE DIV., 13400 W. Outer Drive, Detroit 28, Mich.
- **INTERNATIONAL HARVESTER CO.**, 180 N. Michigan Ave., Chicago 1, Ill.
- **MACK TRUCKS, INC.**, Empire State Bldg., New York 1, New York

DIESEL ENGINES, Stationary

1. Less than 100 H.P.
 2. 100-500 H.P.
 3. 500-1000 H.P.
 4. Over 1000 H.P.
- **BALDWIN-LIMA-HAMILTON CORP.**, Eddystone Div., Philadelphia 42, Pa.
 - **THE BUDA COMPANY**, 154th & Commercial, Harvey, Illinois
 - **CATERPILLAR TRACTOR CO.**, Peoria 8, Ill.
 - **CHICAGO PNEUMATIC TOOL CO.**, 6 East 44th St., New York 17, N.Y.
 - **CUMMINS ENGINE CO., INC.**, Columbus, Ind.
 - **GENERAL MOTORS CORP.**, DETROIT DIESEL ENGINE DIV., 13400 W. Outer Drive, Detroit 28, Mich.
 - **HARNISCHFEGER CORP.**, 4400 W. National Ave., Milwaukee 46, Wisc.
 - **INGERSOLL-RAND CO.**, 11 Broadway, New York 4, N.Y.
 - **INTERNATIONAL HARVESTER CO.**, 180 N. Michigan Ave., Chicago 1, Ill.
 - **THE NATIONAL SUPPLY CO., ENGINE DIV.**, 1401 Sheridan Ave., Springfield, Ohio
 - **NORDBERG MFG. CO.**, 3073 S. Chase Ave., Milwaukee 1, Wisc.
 - **PAGE ENGR. CO.**, Clearing Office, Chicago 38, Ill.

DIPPER TEETH AND PARTS (see Bucket Lips & Teeth)

DIPPERS, Dredge & Shovel (see Buckets)

DITCHING MACHINES

- **BARBER-GREENE COMPANY**, 400 N. Highland Avenue, Aurora, Ill.

DRAFT GAUGES

- **BAILEY METER CO.**, 1050 Ivanhoe Road, Cleveland 10, Ohio
- **THE HAYS CORP.**, 742 East 8th St., Michigan City 21, Ind.

DRAGLINE CABLEWAY EXCAVATORS

- **SAUERMAN BROS., INC.**, 530 S. Clinton St., Chicago 7, Ill.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

DRAG LINES, Crawler

1. Diesel
2. Electric
3. Gasoline

- **AMERICAN HOIST & DERRICK CO.**, 63 S. Robert St., St. Paul 1, Minn.

- **BALDWIN-LIMA-HAMILTON CORP.**, Construction Equipment Div., South Main St., Lima, Ohio

- **BAY CITY SHOVELS, INC.**, Bay City, Michigan

- **BUCYRUS-ERIE CO.**, South Milwaukee, Wisc.

- **CLARK EQUIPMENT CO., CONSTRUCTION MACHINERY DIV.**, Springfield Place, Battle Creek 60, Mich.

- **GAR WOOD INDUSTRIES, INC.**, Findlay, Ohio

- **HARNISCHFEGER CORP.**, 4400 W. National Ave., Milwaukee 46, Wisc.

- **INSLEY MFG. CO.**, 801 N. Olney St., Indianapolis 6, Ind.

- **KOEHRING COMPANY**, 3026 W. Concordia Ave., Milwaukee 16, Wisc.

- **LINK-BELT SPEEDER CORP.**, 1201 Sixth St., S.W., Cedar Rapids, Iowa

- **LITTLE GIANT CRANE & SHOVEL, INC.**, East 16th & Howard Drive, Des Moines 13, Iowa

- **MANITOWOC ENGINEERING CORP.**, 16th & River Sts., Manitowoc, Wisc.

- **MARION POWER SHOVEL CO.**, 617 W. Center St., Marion, Ohio

- **NORTHWEST ENGINEERING CO.**, 135 S. LaSalle St., Chicago 3, Ill.

- **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

- **SCHIED BANTAM CO.**, Park St., Waverly, Iowa

- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

DRAGLINES, Truck Mounted

- **AMERICAN HOIST & DERRICK CO.**, 63 S. Robert St., St. Paul 1, Minn.
- **BALDWIN-LIMA-HAMILTON CORP.**, Construction Equipment Div., South Main St., Lima, Ohio
- **BAY CITY SHOVELS, INC.**, Bay City, Michigan
- **BUCYRUS-ERIE CO.**, South Milwaukee, Wisc.
- **CLARK EQUIPMENT CO., CONSTRUCTION MACHINERY DIV.**, Springfield Place, Battle Creek 60, Mich.
- **GAR WOOD INDUSTRIES, INC.**, Findlay, Ohio
- **HANSON CLUTCH & MACHINE CO.**, Tiffin, Ohio
- **HARNISCHFEGER CORP.**, 4400 W. National Ave., Milwaukee 46, Wisc.
- **INSLEY MFG. CO.**, 801 N. Olney St., Indianapolis 6, Ind.
- **LINK-BELT SPEEDER CORP.**, 1201 Sixth St., S.W., Cedar Rapids, Iowa
- **LITTLE GIANT CRANE & SHOVEL, INC.**, East 16th & Howard Drive, Des Moines 13, Iowa
- **NORTHWEST ENGINEERING CO.**, 135 S. LaSalle St., Chicago 3, Ill.
- **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio
- **"QUICK-WAY TRUCK SHOVEL CO.**, 4150 Josephine St., Denver, Colo.
- **SCHIED BANTAM CO.**, Park St., Waverly, Iowa
- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

DRAGLINES, Walking

1. Diesel
2. Electric
3. Gasoline
4. Electric Generator

- **BUCYRUS-ERIE CO.**, South Milwaukee, Wisc.

- **HANSON CLUTCH & MACHINE CO.**, Tiffin, Ohio

- **MARION POWER SHOVEL CO.**, 617 W. Center St., Marion, Ohio

- **PAGE ENGR. CO.**, Clearing Post Office, Chicago 38, Ill.

- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

DRAGS, Sand (see Sand Recovery Machinery)

DREDGE HOISTS

- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

DREDGE PIPE AND FITTINGS

- **AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO.**, 389 E. 14th St., Chicago Heights, Ill.
- **MECKUM ENGINEERING, INC.**, Dayton Rd., Ottawa, Ill.

DREDGE PIPE SLEEVES

- **THE AMERICAN RUBBER MANUFACTURING COMPANY**, 1145 Park Avenue, Oakland 8, California
- **AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO.**, 389 E. 14th St., Chicago Heights, Ill.
- **CARLYLE RUBBER CO., INC.**, 62 Park Place, New York 7, N.Y.
- **GOODALL RUBBER CO.**, 403 Whitehead Road, Trenton 4, N. J.
- **RAYBESTOS-MANHATTAN, INC.**, MANHATTAN RUBBER DIV., 61 Willett St., Passaic, N. J.
- **UNITED STATES RUBBER CO.**, 1230 Ave. of the Americas, New York 20, N.Y.

DREDGE PUMPS (see Pumps, Dredge)

DREDGES, Sand & Gravel

1. Bucket
2. Ladder
3. Pump

- **AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO.**, 389 E. 14th St., Chicago Heights, Ill.

- **BIRDSBORO STEEL FOUNDRY & MACHINE COMPANY**, Birdsboro, Penn.

- **BODINSON MFG. CO.**, 2401 Bayshore Blvd., San Francisco 24, Calif.

- **DRAVO CORP.**, Dravo Bldg., Fifth & Liberty Aves., Pittsburgh 22, Pa.

- **EAGLE IRON WORKS**, 127 Holcomb Ave., Des Moines 4, Iowa

- **MECKUM ENGINEERING, INC.**, Dayton Rd., Ottawa, Ill.

- **MORRIS MACHINE WORKS, E. Genesee St., Baldwinsville, N.Y.**

- **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

- **YUBA MFG. CO.**, 351 California St., San Francisco 4, Calif.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

DRIFTERS

- GARDNER-DENVER CO., Quincy, Ill.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- THOR POWER TOOL CO., 175 N. State St., Aurora, Ill.
- WORTHINGTON CORP., So. 2nd St., Plainfield, N. J.

DRILL BITS (see Bits)

DRILL STEEL

- BETHLEHEM STEEL CO., Third Street, Bethlehem, Pa.
- BRUNNER & LAY, INC., 9300 King Street, Franklin Park, Ill.
- CHICAGO PNEUMATIC TOOL CO., 6 E. 44th St., New York 17, N.Y.
- GARDNER-DENVER CO., Quincy, Ill.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- SCHRAMM, INC., West Chester, Pa.

DRILLING ACCESSORIES

- BRUNNER & LAY, INC., 9300 King Street, Franklin Park, Illinois
- CHICAGO PNEUMATIC TOOL CO., 6 E. 44th St., New York 17, N.Y.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- SPRAGUE & HENWOOD, INC., 221 W. Olive St., Scranton 2, Pa.
- SANDERSON-CYCLONE DRILL CO., 157 S. Main St., Orrville, Ohio
- STRAUB MFG. CO., INC., 507 Chestnut St., Oakland 20, Calif.

DRILLS, Core

- CARDOX CORP., 307 N. Michigan Ave., Chicago 1, Illinois
- CHICAGO PNEUMATIC TOOL CO., 6 East 44th St., New York 17, N.Y.
- HOFFMAN BROS. DRILLING CO., 120 E. Mahoning St., Piquette, Pa.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- PENNSYLVANIA DRILLING CO., 1201 Chartiers Ave., Pittsburgh 20, Pa.
- SPRAGUE & HENWOOD, INC., 221 W. Olive St., Scranton 2, Pa.

DRILLS, Rock

1. Electric
 2. Gasoline
 3. Pneumatic
 4. Jet Piercing
- CARDOX CORP., 307 N. Michigan Ave., Chicago 1, Illinois
 - CHICAGO PNEUMATIC TOOL CO., 6 East 44th St., New York 17, N.Y.
 - GARDNER-DENVER CO., Quincy, Ill.
 - INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
 - JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
 - LEROI COMPANY, 1706 S. 68th St., Milwaukee 14, Wisc.
 - THE SALEM TOOL CO., 767 S. Ellsworth Ave., Salem, Ohio
 - SANDERSON-CYCLONE DRILL CO., 157 S. Main St., Orrville, Ohio
 - SCHRAMM, INC., West Chester, Pa.

- SYNTRON COMPANY, 450 Lexington Ave., Homer City, Pa.
- THOR POWER TOOL CO., 175 N. State St., Aurora, Ill.
- THE TRAVEL DRILL CO., 218 Bryan Bldg., P.O. Box 1124, Raleigh, N.C.
- WORTHINGTON CORP., So. 2nd St., Plainfield, N. J.

DRILLS, Stoper

- CHICAGO PNEUMATIC TOOL CO., 6 East 44th St., New York 17, N.Y.
- GARDNER-DENVER CO., Quincy, Ill.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- LEROI COMPANY, 1706 S. 68th St., Milwaukee 14, Wisc.
- THOR POWER TOOL CO., 175 N. State St., Aurora, Ill.
- WORTHINGTON CORP., So. 2nd St., Plainfield, N. J.

DRILLS, Well or Blast-Hole

- BUCYRUS-ERIE CO., South Milwaukee, Wisc.
- CHICAGO PNEUMATIC TOOL CO., 6 E. 44th St., New York 17, N.Y.
- GARDNER-DENVER CO., Quincy, Ill.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- LEROI CO., 1706 S. 68th St., Milwaukee 14, Wisc.
- E. J. LONGYEAR CO., 1700 Foshay Tower, Minneapolis 2, Minn.
- LOOMIS MACHINE CO., Tiffin, Ohio
- SANDERSON CYCLONE DRILL CO., 157 S. Main St., Orrville, Ohio
- WORTHINGTON CORP., So. 2nd St., Plainfield, N. J.

DRIVES

1. Chain
 2. Flat Belt
 3. Flexible Shaft
 4. Gear
 5. Short Center
 6. Variable Speed
 7. V-Belt
- AJAX FLEXIBLE COUPLING CO., INC., Westfield, N.Y.
 - ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.
 - THE AMERICAN PULLEY CO., 4200 Wissahickon Ave., Philadelphia 29, Pa.
 - BARBER-GREENE COMPANY, 400 N. Highland Avenue, Aurora, Ill.
 - CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
 - THE CLEVELAND WORM AND GEAR COMPANY, 3249 East 80th Street, Cleveland 4, Ohio
 - CONTINENTAL GIN CO., 4500 5th Ave. S., Birmingham, Ala.
 - COOK BROS. EQUIPMENT CO., 3334 San Fernando Road, Los Angeles 65, Calif.
 - DIAMOND CHAIN CO., INC., 402 Kentucky Ave., Indianapolis 7, Ind.
 - DODGE MFG. CORP., 500 S. Union St., Mishawaka, Ind.
 - DYNAMATIC CORP., 3307 14th Ave., Kenosha, Wis.

- THE FALK CORP., 3001 W. Canal St., Milwaukee 8, Wisc.
- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- THE LIMA ELECTRIC MOTOR CO., 4300 Findlay Road, Lima, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- R. E. LOVEKIN CORP., Schaff Bldg., 15th & Race Sts., Philadelphia 2, Pa.
- REEVES PULLEY CO., INC., 1225 Seventh St., Columbus, Ind.
- SMITH ENGINEERING WORKS, 532 E. Capital Dr., Milwaukee 12, Wis.
- STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora, Ill.
- STERLING ELECTRIC MOTORS INC., 5401 Terminal Rd., Los Angeles 22, Calif.
- TRIANGLE ENGINEERING CO., 2948 W. 26th St., Chicago 23, Ill.
- TRUAX MACHINE & TOOL CO., 16 Michigan St., Seattle 8, Wash.
- U.S. ELECTRICAL MOTORS, INC., 200 E. Slauson Ave., Los Angeles 54, Calif.
- UNITED STATES RUBBER CO., 1230 Ave. of the Americas, New York 20, N.Y.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- T. B. WOODS SONS CO., 5th Ave., Chambersburg, Pa.

DROP BALLS

- BIRDSBORO STEEL FOUNDRY & MACHINE COMPANY, Birdsboro, Penn.
- CAPE ANN ANCHOR & FORGE CO., Whittemore St., Gloucester, Mass.
- DIAMOND IRON WORKS, INC., 1728 N. 2nd St., Minneapolis 11, Minn.
- EAGLE IRON WORKS, 127 Holcomb Ave., Des Moines 4, Iowa

DRY PANS

- EAGLE IRON WORKS, 127 Holcomb Ave., Des Moines 4, Iowa
- McLANAHAN & STONE CORP., Wall & Jackson Sts., Hollidaysburg, Pa.
- McNALLY PITTSBURG MFG. CORP., W. Third St., Pittsburgh, Kan.

DRYERS, Rotary, Gravel, Rock, Sand

- BARBER-GREENE CO., 400 N. Highland Ave., Aurora, Ill.
- BETHLEHEM STEEL COMPANY, Third Street, Bethlehem, Penn.
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- DENVER EQUIPMENT CO., 1400 17th St., P.O. Box 5268, Denver 17, Colo.
- HARDINGE CO., INC., 240 Arch St., York, Pa.

- W. P. HEINEKEN, INC., 50 Broad St., New York 3, N.Y.
- HETHERINGTON & BERNER, INC., 701 Kentucky Ave., Indianapolis 7, Ind.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- McLANAHAN & STONE CORP., Wall & Jackson Sts., Hollidaysburg, Pa.
- NORDBERG MFG. CO., 3073 S. Chase Ave., Milwaukee 1, Wisc.
- PIONEER ENGINEERING WORKS, INC., 1515 Central Ave. N.E., Minneapolis 13, Minn.
- ROGERS IRON WORKS CO., Joplin, Mo.
- STANDARD STEEL CORP., 5036 Boyle Ave., Los Angeles 58, Calif.
- R. C. STANHOPE, INC., 60 E. 42nd St., New York, N.Y.
- TRAYLOR ENGINEERING & MFG. CO., Allentown, Pa.
- VULCAN IRON WORKS, 730 So. Main St., Wilkes-Barre, Pa.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

DRYERS, Plaster Board

- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

DRYERS, Steam Coil

- W. P. HEINEKEN, INC., 50 Broad St., New York 3, N.Y.
- MOORE DRY KILN CO., 1220 W. State St., Jacksonville 1, Fla.
- SHORE ENGINEERING, 322 Broadway, New York 7, New York
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

DUMPING MECHANISMS, Truck

- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- THE GALION ALLSTEEL BODY CO., 605 S. Market Street, Galion, Ohio
- GAR WOOD IND., INC., Wayne Div., Wayne, Mich.
- THE MARION METAL PROD. CO., Cheney Avenue, Marion, Ohio
- ST. PAUL HYDRAULIC HOIST, 2207 University Ave., Minneapolis 14, Minn.

DUST COLLECTING EQUIPMENT ACCESSORIES

- AMERICAN AIR FILTER CO., INC., 215 Central Ave., Louisville 8, Ky.
- AMERICAN WHEELABRATOR & EQUIPMENT CORP., 1281 S. Byrkit St., Mishawaka, Indiana
- CARLYLE RUBBER CO., INC., 62 Park Place, New York 7, New York
- DRAGO CORP., Drago Bldg., Fifth & Liberty Aves., Pittsburgh 22, Pa.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- THE KIRK & BLUM MFG. CO., 3120 Forrer St., Cincinnati 9, Ohio
- THE NORTHERN BLOWER CO., 6409 Barbertain Ave., Cleveland 2, Ohio
- PANGBORN CORP., Hagestown, Md.
- THE W. W. SLY MFG. CO., 4700 Train Ave., Cleveland 2, Ohio
- STANDARD STEEL CORP., 5036 Boyle Ave., Los Angeles 58, Calif.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

DUST COLLECTORS

1. Bag Type
 2. Cyclone
 3. Electric Precipitators
 4. Hydraulic
 5. Portable
- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.
 - 1
 - AMERICAN AIR FILTER CO., INC., 215 Central Ave., Louisville 8, Ky.
 - 1-2-3-4-5
 - AMERICAN WHEELABRATOR & EQUIPMENT CORP., 1281 S. Byrkit St., Mishawaka, Indiana
 - 1
 - BUELL ENGINEERING CO., 70 Pine Street, New York 5, New York
 - 2-3
 - COMBUSTION ENGINEERING, INC., RAYMOND DIV., 1315 N. Branch St., Chicago 22, Ill.
 - 2
 - FLY ASH ARRESTOR CORP., P.O. Box 1883, Birmingham, Ala.
 - 2-4
 - W. P. HEINEKEN, INC., 50 Broad St., New York 3, N.Y.
 - 2
 - IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
 - 2-5
 - KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
 - 1-2-3-4-5
 - THE KIRK & BLUM MFG. CO., 3120 Forster St., Cincinnati 9, Ohio
 - 2-5
 - THE NORTHERN BLOWER CO., 6409 Barberton Ave., Cleveland 2, Ohio
 - 1-2-4-5
 - PANGBORN CORP., Hagerstown, Md.
 - 1-2-5
 - REES BLOW PIPE MFG. CO., 340 Seventh St., San Francisco 3, Calif.
 - 1-2
 - RESEARCH CORP., Bound Brook, N.J.
 - 1
 - SINTERING MACHINERY CORP., Netcang, N.J.
 - 1
 - THE W. W. SLY MFG. CO., 4700 Train Ave., Cleveland 2, Ohio
 - 1-5
 - SPROUT WALDRON & CO., INC., Muncy, Pa.
 - 2
 - RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
 - 1-2
 - TURNER & HAWS ENGINEERING CO., INC., 87 Gardner St., West Roxbury 32, Mass.
 - 1-2-5
 - WESTERN PRECIPITATION CORP., 1016 W. Ninth St., Los Angeles 13, Calif.
 - 1-2-3
 - WILLIAMS PATENT CRUSHER & PULVERIZER CO., INC., 813 Montgomery St., St. Louis 6, Mo.
 - 1-2

DUST COLLECTORS, Rock Drill

- AMERICAN AIR FILTER CO., INC., 215 Central Ave., Louisville 8, Ky.
- BUELL ENGINEERING COMPANY, INC., 70 Pine Street, New York 5, New York
- FLY ASH ARRESTOR CORP., P.O. Box 1883, Birmingham, Ala.
- MINE SAFETY APPLIANCES CO., 201 N. Braddock Ave., Pittsburgh 8, Pa.
- THE NORTHERN BLOWER CO., 6409 Barberton Ave., Cleveland 2, Ohio
- TURNER & HAWS ENGINEERING CO., INC., 87 Gardner St., West Roxbury 32, Mass.

DUST CONTROL

- AQUADYNE CORP., 441 Lexington Ave., New York 17, N.Y.
- DUST SAMPLING AND ANALYZING EQUIPMENT
- BUELL ENGINEERING COMPANY, INC., 70 Pine Street, New York 5, New York
- MINE SAFETY APPLIANCES CO., 201 N. Braddock Ave., Pittsburgh 8, Pa.
- WESTERN PRECIPITATION CORP., 1016 W. Ninth St., Los Angeles 13, Calif.

DYNAMITE AND BLASTING EXPLOSIVES (see Explosives and Dynamite)

E

EARTH MOVING HAULAGE EQUIPMENT, Self Loading

- ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin
- ALLIS-CHALMERS MFG. CO., Tractor Division, Milwaukee 1, Wisconsin
- CATERPILLAR TRACTOR CO., Peoria 8, Ill.
- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- THE EUCLID ROAD MACHINERY CO., 1361 Chardon Road, Cleveland 17, Ohio
- GAR WOOD INDUSTRIES, INC., Findlay, Ohio
- GLEDHILLROAD MACHINERY CO., Galion, Ohio
- THE HEIL COMPANY, 3000 W. Montana St., Milwaukee 1, Wisc.
- INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago 1, Ill.
- LE TOURNEAU-WESTINGHOUSE CO., 2301 N. Adams St., Peoria 3, Ill.
- SAUERMAN BROS., INC., 530 S. Clinton St., Chicago 7, Ill.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WOOLDRIDGE MFG. CO., Hendy Ave., Sunnyvale, Calif.

ECONOMIZERS, Waste Heat (see Boilers, Waste Heat)

ELECTRIC DETECTORS & SEPARATORS

- RADIO CORP. OF AMERICA, Engineering Products Dept., Front & Cooper Sts., Camden 2, N.J.

ELECTRIC MOTORS

- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.
- ELECTRIC MACHINERY MFG. CO., 800 Central Avenue, Minneapolis 13, Minn.
- GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.
- THE LIMA ELECTRIC MOTOR CO., 4300 Findlay Road, Lima, Ohio
- STERLING ELECTRIC MOTORS, INC., 3401 Telegraph Rd., Los Angeles 22, Calif.
- U. S. ELECTRICAL MOTORS, INC., 200 E. Slauson Ave., Los Angeles 54, Calif.

ELECTRIC SWITCH GEAR

- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.

ELECTRIC MACHINERY MFG. CO., 800 Central Avenue, Minneapolis 13, Minn.

- GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

ELECTRIC TRANSFORMERS

- ALLIS-CHALMERS MFG. CO., 975 S. 70th St., Milwaukee 1, Wisc.
- GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.
- F. R. HANNON & SONS, 1605 Waynesburg Road S.E., Canton 7, Ohio

ELECTRIC EQUIPMENT AND SUPPLIES

- GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

ELECTRODES, WELDING (see Welding Rods and Electrodes)

ELEVATORS, Chain or Belt & Bucket

- ANCHOR CONCRETE MACHINERY CO., 1191 Fairview Ave., Columbus 12, Ohio
- BALDWIN-LIMA-HAMILTON CORP., Construction Equipment Div., South Main St., Lima, Ohio
- BAUGHMAN MFG. CO., INC., Shipman Road, Jerseyville, Ill.
- BEAUMONT BIRCH CO., 1505 Race St., Philadelphia 2, Pa.
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- BONDED SCALE AND MACHINE CO., 2193 S. Third St., Columbus 7, Ohio
- L. BURMEISTER CO., 4535 W. Mitchell St., Milwaukee 14, Wisc.
- BUTLER BIN CO., 945 Blackstone Ave., Waukesha, Wisc.
- CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- CONTINENTAL GIN CO., 4500 5th Ave. S., Birmingham, Ala.
- DIAMOND IRON WORKS, INC., 1728 North 2nd St., Minneapolis 11, Minn.
- EAGLE CRUSHER CO., INC., 900 Harding Way East, Galion, Ohio
- THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio
- FANNING SHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- FLEMING MFG. CO., Dept. C, Fleming Ave., Cuba, Mo.
- GRUEIDLER CRUSHER & PULV. CO., 2915 N. Market St., St. Louis 6, Mo.
- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- JOHNSON & HOEHLER, INC., P.O. Box 102, Lansdowne, Pa.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- LANDIS STEEL CO., 116 West A St., P. O. Box 248, Picher, Okla.
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wisc.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.

• McLANAHAN & STONE CORP., Wall & Jackson Sts., Hollidaysburg, Pa.

• PIONEER ENGINEERING WORKS, INC., 1515 Central Ave. N.E., Minneapolis 13, Minn.

• REES BLOW PIPE MFG. CO., 340 Seventh St., San Francisco 3, Calif.

• ROGERS IRON WORKS CO., Joplin, Mo.

• SMITH ENGINEERING WORKS, 532 East Capital Dr., Milwaukee 12, Wis.

SPROUT WALDRON & CO., INC., Muncy, Pa.

• STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora, Ill.

STRAUB MFG. CO., INC., 507 Chestnut St., Oakland 20, Calif.

• STURTEVANT MILL COMPANY, 102 Clayton St., Dorchester, Boston 22, Mass.

TRIANGLE ENGINEERING CO., 2948 W. 26th St., Chicago 23, Ill.

UNIVERSAL ENGINEERING CORP., 625 C Ave. N.W., Cedar Rapids, Iowa

• UNITED STATES RUBBER CO., 1230 Ave. of the Americas, New York 20, N.Y.

• UNIVERSAL ROAD MACHINERY CO., 27 Emerick St., Kingston, N.Y.

• WEBSTER MFG. CO., West Hall St., Tiffin, Ohio

• WILLIAMS PATENT CRUSHER & PULVERIZER CO., INC., 813 Montgomery St., St. Louis 6, Mo.

• WITTEMAN MACHINERY CO., Farmingdale, N.J.

ELEVATORS, Bulk Cement

AMERICAN HOIST AND DERRICK COMPANY, 63 South Robert St., St. Paul 1, Minnesota

ANCHOR CONCRETE MACHINERY CO., 1191 Fairview Ave., Columbus 12, Ohio

• BAUGHMAN MFG. CO., INC., Shipman Road, Jerseyville, Ill.

BEAUMONT BIRCH CO., 1505 Race St., Philadelphia 2, Pa.

BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.

• L. BURMEISTER CO., 4535 W. Mitchell St., Milwaukee 14, Wisc.

• BUTLER BIN CO., 945 Blackstone Ave., Waukesha, Wisc.

• CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.

• CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.

• CONTINENTAL GIN CO., 4500 5th Ave. S., Birmingham, Ala.

• C. S. JOHNSON CO., P.O. Box 71, Champaign, Ill.

• KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.

• LINK-BELT CO., 307 N. Michigan Ave., Chicago 1, Ill.

• LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wisc.

MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.

• STURTEVANT MILL CO., 102 Clayton St., Dorchester, Boston 22, Mass.

TRIANGLE ENGINEERING CO., 2948 W. 26th St., Chicago 23, Ill.

• WEBSTER MFG. CO., West Hall St., Tiffin, Ohio

ELEVATORS, Portable (see Loaders, Truck)

ENGINEERING SERVICE, Consulting and Designing

W. R. BENDY CEMENT ENGINEERS, 9403 Riverview Drive, St. Louis 15, Mo.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

• **THE DORR CO. ENGRS.**, Barry Place, Stamford, Conn.
THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio

• **GRUENDLER CRUSHER & PULV. CO.**, 2915 N. Market St., St. Louis 6, Mo.

• **HAMMERMILLS, INC.**, (Subsidiary of PETTIBONE MULLIKEN CORP.), 4700 W. Division St., Chicago 40, Ill.

• **E. LEE HEIDENREICH, JR.**, 75 Second St., Newburgh, N. J.

• **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.

• **LIPPMANN ENGINEERING WORKS**, 4603 W. Mitchell St., Milwaukee 14, Wis.

• **MACDONALD ENGR. CO.**, 188 W. Randolph St., Chicago 1, Ill.
MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.

• **McLANAHAN & STONE CORP.**, Wall & Jackson Sts., Hollidaysburg, Pa.

• **MILLER EQUIPMENT CO., INC.**, P. O. Box 1566, Salisbury, No. Car.

• **M & M ENGR. CORP.**, 1017 W. 23rd St., Indianapolis 23, Ind.

• **NICHOLS ENGINEERING & RESEARCH CORP.**, 70 Pine St., New York 5, N.Y.

• **SHORE ENGINEERING**, 322 Broadway, New York 7, New York

• **SAUERMAN BROS., INC.**, 530 S. Clinton St., Chicago 7, Ill.

• **F. L. SMITH & CO.**, 11 West 42nd St., New York 36, N.Y.

• **SMITH ENGINEERING WORKS**, 532 East Capital Dr., Milwaukee 12, Wis.

• **WESTERN MACHINERY CO.**, 760 Folsom St., San Francisco 7, Calif.

ENGINES, Diesel (see Diesel Engines)

ENGINES

1. Gasoline
2. Kerosene
3. Marine
4. Natural Gas or L.P.G.

• **ALLIS-CHALMERS MFG. CO.**, 975 South 70th Street, Milwaukee 1, Wisconsin

• **ALLIS-CHALMERS MFG. CO.**, Tractor Division, Milwaukee 1, Wisc.

• **THE BUDA COMPANY**, 154th & Commercial, Harvey, Illinois

• **J. I. CASE COMPANY**, 700 State Street, Racine, Wisconsin

• **MARINE & INDUSTRIAL ENGINE DIV., CHRYSLER CORPORATION**, 2000 Van Horn Road—P.O. Drawer W. Trenton, Michigan

• **CUMMINS ENGINE CO., INC.**, Columbus, Ind.

• **FORD MOTOR CO.**, Industrial Engine Dept., 15050 Woodward Ave., P.O. Box 3581, Highland Park 3, Mich.

• **DETROIT DIESEL ENGINE DIV., GENERAL MOTORS CORP.**, 13400 W. Outer Dr., Detroit 28, Mich.

• **INTERNATIONAL HARVESTER CO.**, 180 N. Michigan Ave., Chicago 1, Ill.

• **LEROI COMPANY**, 1706 S. 68th St., Milwaukee 14, Wisc.

• **THE NATIONAL SUPPLY CO.**, Engine Div., 1401 Sheridan Ave., Springfield, Ohio

• **NORDBERG MFG. CO.**, 3073 S. Chase Ave., Milwaukee 1, Wisc.

• **D. W. ONAN & SONS, INC.**, University Ave. S.E., at 25th, Minneapolis 14, Minn.

• **SCHRAMM, INC.**, West Chester, Pa.

ENTRAINED AIR INDICATORS

• **DEWEY AND ALMY CHEMICAL CO.**, 62 Whittemore Ave., Cambridge 40, Mass.

• **A. C. HORN CO., INC.**, 10th St. & 44th Ave., Long Island City 1, N.Y.

• **HUMBOLDT MFG. CO.**, 2014 N. Whipple St., Chicago 47, Ill.

EXCAVATORS, Cableway Dragline (see Cable Excavators)

EXCAVATORS, Clamshell (see Cranes)

EXCAVATORS, Scraper (see Cable Excavators)

EXCAVATORS, Tower (see Cableways)

EXHAUSTERS

• **ALLIS-CHALMERS MFG. CO.**, 975 South 70th Street, Milwaukee 1, Wisconsin

• **AMERICAN AIR FILTER CO., INC.**, 215 Central Ave., Louisville 8, Ky.

• **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.

• **THE KIRK & BLUM MFG. CO.**, 3120 Farrer St., Cincinnati 9, Ohio

• **THE NORTHERN BLOWER CO.**, 6409 Barborton Ave., Cleveland 2, Ohio

• **REES BLOW PIPE MFG. CO.**, 340 Seventh St., San Francisco 3, Calif.

EXPLOSIVES AND DYNAMITE

• **ATLAS POWDER COMPANY**, Wilmington 9, Delaware

• **E. I. DU PONT DE NEMOURS & CO., INC.**, 11502 Nemours Bldg., Wilmington 98, Del.

• **HERCULES POWDER CO.**, 946 King Street, Wilmington 99, Dela.

• **ILLINOIS POWDER MFG. CO.**, 506 Olive St., St. Louis 16, Mo.

• **THE KING POWDER CO., INC.**, P.O. Box 974, Cincinnati 1, Ohio

• **TROJAN POWDER CO.**, 17-N. 7th St., Allentown, Pa.

F

FANS AND BLOWERS

• **AMERICAN AIR FILTER CO., INC.**, 215 Central Ave., Louisville 8, Ky.

• **THE FAHRALLOY CO.**, 150th & Lexington Aves., Harvey, Ill.

• **FLY ASH ARRESTOR CORP.**, P.O. Box 1883, Birmingham, Ala.

• **GENERAL ELECTRIC CO.**, 1 River Road, Schenectady 5, N.Y.

• **F. R. HANNON & SONS**, 1605 Waynesburg Road S.E., Canton 7, Ohio

• **JOY MFG. CO.**, Henry W. Oliver Bldg., Pittsburgh 22, Pa.

• **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.

• **THE KIRK & BLUM MFG. CO.**, 3120 Farrer St., Cincinnati 9, Ohio

• **THE NORTHERN BLOWER CO.**, 6409 Barborton Ave., Cleveland 2, Ohio

• **REES BLOW PIPE MFG. CO.**, 340 Seventh St., San Francisco 3, Calif.

• **SANDERSON-CYCLONE DRILL CO.**, 157 S. Main St., Orrville, Ohio

• **SINTERING MACHINERY CORP.**, Netcong, N. J.

• **SPROUT, WALDRON & CO., INC.**, Muncy, Pa.

• **WILLIAMS PATENT CRUSHER & PULVERIZER CO., INC.**, 813 Montgomery St., St. Louis 6, Mo.

FASTENERS, Belt (see Belt Fasteners)

FEEDERS, Concrete

• **BEAUMONT BIRCH COMPANY**, 1505 Race Street, Philadelphia 2, Penn.

FEEDERS, Flue Dust

• **BEAUMONT BIRCH COMPANY**, 1505 Race Street, Philadelphia 2, Penn.

FEEDERS

1. Apron
2. Proportioning
3. Reciprocating
4. Screw
5. Table
6. Weight Proportioning
7. Rotary
8. Chain
9. Scale Conveyor
10. Vibrating
11. Slurry

• **ALLIS-CHALMERS MFG. CO.**, 975 So. 70th St., Milwaukee 1, Wisc.

• **AMERICAN CYANAMID COMPANY**, 30 Rockefeller Plaza, New York 20, New York

• **BACON-PIETSCHE CO., INC.**, 75 North Maple Avenue, Ridgewood, New Jersey

• **BALDWIN-LIMA-HAMILTON CORP.**, Construction Equipment Div., South Main St., Lima, Ohio

• **BARBER-GREENE CO.**, 400 N. Highland Ave., Aurora, Ill.

• **BEAUMONT BIRCH CO.**, 1505 Race St., Philadelphia 2, Pa.

• **BIRDSBORO STEEL FOUNDRY & MACHINE CO.**, Birdsboro, Pa.

• **BODINSON MFG. CO.**, 2401 Bayshore Blvd., San Francisco 24, Calif.

• **BONDED SCALE AND MACHINE CO.**, 2193 S. Third St., Columbus 7, Ohio

• **BUTLER BIN CO.**, 945 Blackstone Ave., Waukesha, Wisc.

• **CARRIER CONVEYOR CORP.**, 2144 Frankfort Avenue, Louisville 6, Ky.

• **CHAIN BELT COMPANY**, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.

• **CONTINENTAL GIN CO.**, 4500 5th Ave. S., Birmingham, Ala.

• **THE DEISTER CONCENTRATOR CO.**, 935 Glasgow Ave., Fort Wayne 1, Ind.

• **DEISTER MACHINE CO.**, 1933 E. Wayne St., Fort Wayne 4, Ind.

• **DENVER EQUIPMENT CO.**, 1400 17th Street, P.O. Box 5268, Denver 17, Colo.

• **DIAMOND IRON WORKS, INC.**, 1728 North 2nd St., Minneapolis 11, Minn.

• **EAGLE CRUSHER CO., INC.**, 900 Harding Way East, Galloway, Ohio

• **EQUIPMENT ENGINEERS, INC.**, 41 Sutter St., San Francisco 4, Calif.

• **THE FAIRFIELD ENGINEERING CO.**, 324 Barnhart St., Marion, Ohio

• **FANNING SHUETT ENGINEERING CO.**, 4325 N. Third Street, Philadelphia 40, Pa.

• **FULLER CO.**, 128 Bridge St., Catsaqua, Pa.

• **GRUENDLER CRUSHER & PULV. CO.**, 2915 N. Market St., St. Louis 6, Mo.

• **HAMMERMILLS, INC.**, (Subsidiary of PETTIBONE MULLIKEN CORP.), 4700 W. Division St., Chicago 40, Ill.

• **HARDINGE CO., INC.**, 240 Arch St., York, Pa.

• **THE HOWE SCALE CO.**, Rutland, Vt.

• **HEWITT-ROBINS, INC.**, 686 Glenbrook Road, Stamford, Conn.

• **IOWA MFG. CO.**, 916-16th St. N.E., Cedar Rapids, Iowa

• **THE JEFFREY MFG. CO.**, 935 N. Fourth St., Columbus 16, Ohio

• **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.

• **LINK-BELT COMPANY**, 307 N. Michigan Ave., Chicago 1, Ill.

• **LIPPMANN ENGINEERING WORKS**, 4603 W. Mitchell St., Milwaukee 14, Wis.

• **E. F. MARSH ENGR. CO.**, 4324 W. Clayton Ave., St. Louis 10, Mo.

• **McLANAHAN & STONE CORP.**, Wall & Jackson Sts., Hollidaysburg, Pa.

• **MECKUM ENGINEERING, INC.**, Dayton Rd., Ottawa, Ill.

• **MERRICK SCALE MFG. CO.**, 180 Aulman St., Passaic, N. J.

• **MILLER EQUIPMENT CO., INC.**, P. O. Box 1566, Salisbury, No. Car.

• **NORDBERG MFG. CO.**, 3073 S. Chase Ave., Milwaukee 1, Wisc.

• **PIONEER ENGINEERING WORKS, INC.**, 1515 Central Ave. N.E., Minneapolis 13, Minn.

• **RICHARDSON SCALE CO.**, 668-698 Van Houten Ave., Clifton, N. J.

• **ROGERS IRON WORKS CO.**, Joplin, Mo.

• **ROSS SCREEN & FEEDER CO.**, 19 Rector St., New York 6, N.Y.

• **SCHAFER POLDOMETER CO.**, 2828 Smallman St., Pittsburgh 22, Pa.

• **SIMPLICITY ENGINEERING CO.**, 213 S. Oak St., Durand, Mich.

• **SINTERING MACHINERY CORP.**, Netcong, N. J.

• **F. L. SMITH & CO.**, 11 West 42nd St., New York 36, N.Y.

• **SMITH ENGINEERING WORKS**, 532 East Capital Dr., Milwaukee 12, Wis.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

SPROUT WALDRON & CO., INC., Muncy, Pa.
4

• **STEPHENS-ADAMSON MFG. CO.**, Ridgeway Ave., Aurora, Ill.
1-2-3-4-5-6-7-8-9-10

STRAUB MFG. CO., INC., 507 Chestnut St., Oakland 20, Calif.
3-4-5-7

ST. REGIS PAPER CO., 230 Park Ave., New York 17, N.Y.
4-6-9

• **SYNTRON COMPANY**, 450 Lexington Ave., Homer City, Pa.
3-6-10

• **TRAYLOR ENGINEERING & MFG. CO.**, Allentown, Pa.
1-3

TRIANGLE ENGINEERING CO., 2948 W. 26th St., Chicago 23, Ill.
3-4

• **UNIVERSAL ENGINEERING CORP.**, 625 C. Ave. N.W., Cedar Rapids, Iowa
1-3

• **UNIVERSAL ROAD MACHINERY CO.**, 27 Emerick St., Kingston, N.Y.
1

VIBRO-PLUS PRODUCTS, INC., 54-11 Queens Blvd., Woodside 77, N.Y.
10

RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
1

• **WEBSTER MFG. CO.**, West Hall St., Tiffin, Ohio
1-3-4-8

• **WESTERN MACHINERY CO.**, 760 Folsom St., San Francisco 7, Calif.
1-10

• **WILLIAMS PATENT CRUSHER & PULVERIZER CO., INC.**, 815 Montgomery St., St. Louis 6, Mo.
1-3

FIFTH WHEEL, Heavy Duty, Special

• **AMERICAN STEEL FOUNDRIES**, 400-410 N. Michigan Ave., Chicago 11, Ill.

FILTER CLOTH, Slurry Filter

• **SINTERING MACHINERY CORP.**, Netcong, N. J.

• **THE W. S. TYLER CO.**, 3615 Superior Ave., Cleveland 14, Ohio

FILTERS, Cement Slurry (see Slurry Filters)

FIRE BRICK, Kiln Liners, etc. (see Refractories)

FLEXIBLE COUPLINGS (see Drives)

FLOORING, Industrial, Iron and Steel

• **BLAW-KNOX CO.**, Blawnox, Pittsburgh, Pa.

• **DRAVO CORP.**, Dravo Bldg., Fifth & Liberty Aves., Pittsburgh 22, Pa.

• **HENDRICK MFG. CO.**, 39 Dundaff St., Carbondale, Pa.

• **UNITED STATES STEEL CORP.**, 525 William Penn Place, Pittsburgh 30, Pa.

FLOORING SYSTEMS, Concrete (see Concrete Specialty Forms)

FLOTATION EQUIPMENT

DENVER EQUIPMENT CO., 1400 17th Street, P.O. Box 5268, Denver 17, Colo.

• **THE GALIGHIER CO.**, 545 W. 8th South St., Salt Lake City 4, Utah

• **GENERAL AMERICAN TRANSPORTATION CORP.**, 135 S. LaSalle St., Chicago 90, Ill.

• **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.

• **THE MINE & SMELTER SUPPLY CO.**, 17th & Blake, Denver 17, Colo.

• **F. L. SMIDTH & CO.**, 11 West 42nd St., New York 36, N.Y.

• **THE STEARNS-ROGER MFG. CO.**, 1720 California St., Denver 2, Colo.

• **WESTERN MACHINERY CO.**, 760 Folsom St., San Francisco 7, Calif.

FLOTATION REAGENTS & SUPPLIES

• **AMERICAN CYANAMID COMPANY**, 30 Rockefeller Plaza, New York 20, New York

ARMOUR & COMPANY, 1335 W. 31st St., Chicago 9, Ill.

DENVER EQUIPMENT CO., 1400 17th St., P.O. Box 5268, Denver 17, Colo.

• **HERCULES POWDER CO.**, 946 King St., Wilmington 99, Dela.

FROGS AND SWITCHES, Railway

• **AMERICAN BRAKE SHOE CO.**, 230 Park Ave., New York 17, N.Y.

• **THE FROG, SWITCH & MFG. CO.**, Carlisle, Pa.

L. B. FOSTER CO., P.O. Box 1647, Pittsburgh 30, Pa.

TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.

FURNACES, Forging

• **DIAMOND IRON WORKS, INC.**, 1728 North 2nd St., Minneapolis 11, Minn.

• **INGERSOLL-RAND CO.**, 11 Broadway, New York 4, N.Y.

JOHNSTON MFG. CO., 2825 E. Hennepin Ave., Minneapolis 13, Minn.

FUSES, Detonating and Blasting (see Blasting Supplies)

G

GAS ANALYZERS AND RECORDERS

• **BAILEY METER CO.**, 1050 Ivanhoe Road, Cleveland 10, Ohio

ARNOLD O. BECKMAN, INC., 1020 Mission St., South Pasadena, Calif.

• **CAMBRIDGE INSTRUMENT CO., INC.**, Grand Central Terminal, New York 17, N.Y.

THE HAYS CORP., 742 East 8th St., Michigan City 21, Ind.

MINE SAFETY APPLIANCES CO., 201 N. Braddock Ave., Pittsburgh 8, Pa.

• **F. L. SMIDTH & CO.**, 11 W. 42nd St., New York 36, N.Y.

GAS BURNERS, Natural

CLEAVER-BROOKS CO., 326 E. Keefe Ave., Milwaukee 12, Wisc.

• **F. L. SMIDTH & CO.**, 11 West 42nd St., New York 36, N.Y.

GAS PRODUCERS

• **WELLMAN ENGINEERING CO.**, 7000 Central Ave., Cleveland 4, Ohio

GATES (see Bin Gates and Chutes)

• A dot before name indicates ROCK PRODUCTS Advertiser

GEAR-MOTORS

• **ALLIS-CHALMERS MFG. CO.**, 975 South 70th Street, Milwaukee 1, Wisconsin

• **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington

• **THE FALK CORP.**, 3001 W. Canal St., Milwaukee 8, Wisc.

• **GENERAL ELECTRIC CO.**, 1 River Road, Schenectady 5, N.Y.

• **LINK-BELT COMPANY**, 307 N. Michigan Ave., Chicago 1, Ill.

R. E. LOVEKIN CORP., Schaff Bldg., 15th & Race Sts., Philadelphia 2, Pa.

• **STERLING ELECTRIC MOTORS, INC.**, 5401 Telegraph Rd., Los Angeles 22, Calif.

U.S. ELECTRICAL MOTORS, INC., 200 E. Slauson Ave., Los Angeles 54, Calif.

GEAR REDUCERS (see Drivers)

GEARS

• **AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO.**, 389 E. 14th St., Chicago Heights, Ill.

• **CONTINENTAL GIN CO.**, 4500 5th Ave. S., Birmingham, Ala.

• **THE FALK CORP.**, 3001 W. Canal St., Milwaukee 8, Wisc.

• **THE JEFFREY MFG. CO.**, 935 N. Fourth St., Columbus 16, Ohio

• **LINK-BELT COMPANY**, 307 N. Michigan Ave., Chicago 1, Ill.

R. E. LOVEKIN CORP., Schaff Bldg., 15th & Race Sts., Philadelphia 2, Pa.

• **McLANAHAN & STONE CORP.**, Wall & Jackson Sts., Hollidaysburg, Pa.

REEVES PULLEY CO., INC., 1225 Seventh St., Columbus, Ind.

STROM PROCESS STEEL CO., 1428 High St. N. S., Pittsburgh 12, Pa.

TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.

THE TOOL STEEL GEAR & PINION CO., 211 Township Ave., Cincinnati 16, Ohio

• **TRAYLOR ENGINEERING & MFG. CO.**, Allentown, Pa.

• **VULCAN IRON WORKS**, 730 So. Main St., Wilkes-Barre, Pa.

• **WEBSTER MFG. CO.**, West Hall St., Tiffin, Ohio

GENERATOR SETS, Electric

1. Diesel Engine
2. Gasoline Engine
3. Electric Motor
4. Turbine

• **ALLIS-CHALMERS MFG. CO.**, 975 So. 70th St., Milwaukee 1, Wisc.
2-3-4

• **THE BUDA COMPANY**, 154th & Commercial, Harvey, Illinois
1-2

• **CATERPILLAR TRACTOR CO.**, Peoria 8, Ill.
1

• **CHICAGO PNEUMATIC TOOL CO.**, 6 East 44th St., New York 17, N.Y.

CUMMINS ENGINE CO., INC., Columbus, Ind.

ELECTRIC MACHINERY MFG. CO., 800 Central Avenue, Minneapolis 13, Minn.
3

• **GENERAL ELECTRIC CO.**, 1 River Road, Schenectady 5, N.Y.
1-2-3-4

• **GENERAL MOTORS CORP., DETROIT DIESEL ENGINE DIV.**, 13400 W. Outer Drive, Detroit 28, Mich.
1

• **INTERNATIONAL HARVESTER CO.**, 180 N. Michigan Ave., Chicago 1, Ill.
1-2

• **LEROI COMPANY**, 1706 S. 68th St., Milwaukee 14, Wisc.
2

THE NATIONAL SUPPLY CO., ENGINE DIV., 1401 Sheridan Ave., Springfield, Ohio
1

• **NORDBERG MFG. CO.**, 3073 S. Chase Ave., Milwaukee 1, Wisc.
1

D. W. ONAN & SONS, INC., University Ave. S.E., at 25th, Minneapolis 14, Minn.
1-2

THE READY-POWER CO., 11231 Freud Ave., Detroit 14, Mich.
1-2

GLAZING COMPOUNDS, for Concrete Masonry Units

• **THE BURNS & RUSSELL CO.**, Tower Building, Baltimore 2, Md.

A. C. HORN CO., INC., 10th St. & 44th Ave., Long Island City 1, N.Y.

GRAPPLES (see Buckets)

GREASE (see Lubricants)

GRINDERS, for Detachable Bits (see Bits, Grinders)

GRINDING AIDS, Cement

• **DEWEY AND ALMY CHEMICAL CO.**, 62 Whittemore Ave., Cambridge 40, Mass.

• **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, N.Y.

MONSANTO CHEMICAL CO. PHOSPHATE DIV., 1700 S. Second St., St. Louis 4, Mo.

GRINDING MEDIA, Mills

• **ALLIS-CHALMERS MFG. CO.**, 975 So. 70th St., Milwaukee 1, Wisc.

BETHLEHEM STEEL CO., Third St., Bethlehem, Penn.

• **THE COLORADO FUEL AND IRON CORP.**, Continental Oil Building, Denver 2, Colorado

DENVER EQUIPMENT CO., 1400 17th St., P.O. Box 5268, Denver 17, Colo.

• **HARDINGE CO., INC.**, 240 Arch St., York, Pa.

• **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Avenue, New York 16, N.Y.

• **F. L. SMIDTH & CO.**, 11 West 42nd St., New York 36, N.Y.

• **UNITED STATES STEEL CORP.**, 525 William Penn Place, Pittsburgh 30, Pa.

GRINDING MILL CONTROLS, Feed Regulators

• **HARDINGE CO., INC.**, 240 Arch St., York, Pa.

• **THE MINE & SMELTER SUPPLY CO.**, 17th & Blake, Denver 17, Colo.

• **F. L. SMIDTH & CO.**, 11 West 42nd St., New York 36, N.Y.

GRINDING PEBBLES (see Grinding Media)

GRIZZLIES (see Screens)

GUARDS, Machinery

A & A MFG. CO., 2017 W. Clybourn St., Milwaukee 3, Wisc.

BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.

E. D. BULLARD CO., 275 Eighth St., San Francisco 3, Calif.

• **THE KIRK & BLUM MFG. CO.**, 3120 Forrer St., Cincinnati 9, Ohio

DIRECTORY

- JOSEPH T. RYERSON & SON, INC., P.O. Box 8000-A, Chicago 80, Ill.
- THE STANDARD METAL MFG. CO., 110 Center St., Malinta, Ohio

GUNS AND CARTRIDGES, Kiln Ring Removal

- E. I. DU PONT DE NEMOURS & CO., INC., 11502 Nemours Bldg., Wilmington 98, Del.
- REMINGTON ARMS CO., INC., 939 Barnum Ave., Bridgeport 2, Conn.

GUNS, Hydraulic Monitor (see Monitors, Hydraulic)

GYPSUM PLANT MACHINERY

- W. P. HEINEKEN, INC., 30 Broad St., New York 3, N.Y.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- McLANAHAN & STONE CORP., Wall & Jackson Sts., Hollidaysburg, Pa.
- F. L. SMIDTH & CO., 11 W. 42nd St., New York 36, N.Y.
- SEPARATOR DIV., SOUTHWESTERN ENGINEERING CO., 4800 S. Santa Fe Ave., Los Angeles 38, Calif.
- STURTEVANT MILL COMPANY, 102 Clayton St., Dorchester, Boston 22, Mass.
- UNIVERSAL ROAD MACHINERY CO., 27 Emerick St., Kingston, N.Y.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

GYPSUM PLANTS, Engineers, Contractors

- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- THE NICHOLSON CO., INC., 10 Rockefeller Plaza, New York 20, N.Y.
- F. L. SMIDTH & CO., 11 W. 42nd St., New York 36, N.Y.

H

HAMMERMILLS (see Crushers, Hammer)

HARDENERS, Concrete

- A. C. HORN CO., INC., 10th St. & 44th Ave., Long Island City 1, N.Y.
- THE MASTER BUILDERS CO., 7016 Euclid Ave., Cleveland 3, Ohio
- SOLVAY PROCESS DIV., ALLIED CHEMICAL & DYE CORP., 61 Broadway, N. New York 6, N.Y.

HARD SURFACING METALS (see Welding Rods, Hard Facing)

HEAT EXCHANGERS

- CLEAVER-BROOKS CO., 326 E. Keefe Ave., Milwaukee 12, Wisc.
- COEN CO., 40 Boardman Place, San Francisco, Calif.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- F. L. SMIDTH & CO., 11 West 42nd St., New York 36, N.Y.
- WESTERN PRECIPITATION CORP., 1016 W. Ninth St., Los Angeles 13, Calif.

HEAT TREATING MACHINES, Drill Steel

- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.

HEATERS, Concrete Mixer

- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- HAUCK MANUFACTURING COMPANY, 124-136 Tenth Street, Brooklyn 15, New York
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- LITTLEFORD BROS., INC., 453 E. Pearl St., Cincinnati 2, Ohio
- STORM, INC., 845-92nd Ave., Oakland 3, Calif.

HEATERS, Plant, Hot Air

- AMERICAN AIR FILTER CO., INC., 215 Central Ave., Louisville 8, Ky.
- CLEAVER-BROOKS CO., 326 E. Keefe Ave., Milwaukee 12, Wisc.
- DRAVO CORP., Dravo Bldg., Fifth & Liberty Aves., Pittsburgh 22, Pa.
- JACKSON & CHURCH CO., 321 N. Hamilton St., Saginaw, Mich.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, N.Y.
- PRAT-DANIEL CORP., 2 Meadow St., So. Norwalk, Conn.

HEAVY-MEDIA SEPARATION PROCESS

- AMERICAN CYANAMID CO., 30 Rockefeller Plaza, New York 20, New York
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- THE MINE & SMELTER SUPPLY CO., 17th & Blake, Denver 17, Colo.
- STEARNS MAGNETIC INC., 675 S. 28th St., Milwaukee 46, Wisc.
- WESTERN MACHINERY CO., 760 Folsom St., San Francisco 7, Calif.
- WRIGHT HOIST DIVISION, AMERICAN CHAIN & CABLE CO., INC., York, Pennsylvania

HOISTS

- AMERICAN HOIST & DERRICK CO., 63 S. Robert St., St. Paul 1, Minn.
- J. W. APPLEY & SON, INC., 831 9th Street North, St. Petersburg 2, Florida
- CHICAGO PNEUMATIC TOOL CO., 6 East 44th St., New York 17, N.Y.
- CLIPPER MFG. CO., 2800 Warwick, Kansas City 8, Mo.
- COOK BROS. EQUIPMENT CO., 3334 San Fernando Road, Los Angeles 65, Calif.
- THE GALION ALLSTEEL BODY CO., 605 S. Market St., Galion, Ohio
- GARDNER-DENVER CO., Quincy, Ill.
- HARNISCHFEGGER CORP., 4400 W. National Ave., Milwaukee 46, Wisc.
- THE HEIL CO., 3000 W. Montana St., Milwaukee 1, Wisc.
- HERCULES STEEL PROD. CORP., Sherman Street, Galion, Ohio
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- M & M ENGR. CORP., 1017 W. 23rd St., Indianapolis 23, Ind.
- O. K. MACHINERY DIV., JOHN C. MOTTER PRINTING PRESS CO., 600 Florence St., Columbia 1, Pa.

- THE GENE OLSEN CORP., 401 Grace St., Adrian, Mich.
- ROGERS IRON WORKS CO., Joplin, Mo.
- SAUERMAN BROS., INC., 530 S. Clinton St., Chicago 7, Ill.
- THE STEARNS-ROGER MFG. CO., 1720 California St., Denver 2, Colo.
- THOR POWER TOOL CO., 175 N. State St., Aurora, Ill.
- VULCAN IRON WORKS, 730 So. Main St., Wilkes-Barre, Pa.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WHITING CORP., Harvey, Ill.
- THE YALE & TOWNE MFG. CO., Roosevelt Blvd. & Haldeman Ave., Philadelphia 15, Pa.

HOPPERS, Aggregates, Cement, etc.

- BARBER-GREENE CO., 400 N. Highland Ave., Aurora, Ill.
- BUTLER BIN CO., 945 Blackstone Ave., Waukesha, Wisc.
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio
- FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- GENERAL ENGINES CO., INC., 307 Hunter St., Gloucester City, N.J.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wisc.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- TRIANGLE ENGINEERING CO., 2948 W. 26th St., Chicago 23, Ill.
- RICHARD P. WALSH CO., 30 Church St., New York, New York

HOPPERS, Unloading Ready Mixed Concrete

- BUTLER BIN CO., 945 Blackstone Ave., Waukesha, Wisc.
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- RICHARD P. WALSH CO., 30 Church St., New York, New York

HOSE, Rubber

1. Hydraulic
 2. Pneumatic
 3. Oil
 4. Sand
- AERO-COUPPLING CORP., 3015 Winona Ave., Burbank, Calif.
 - AEROQUIP CORP., 300 S. East Ave., Jackson, Mich.
 - THE AMERICAN RUBBER MFG. CO., 1145 Park Avenue, Oakland 8, Calif.
 - AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
 - BOSTON WOVEN HOSE & RUBBER COMPANY, P. O. Box 1071, Boston 3, Massachusetts

- CARLYLE RUBBER CO., INC., 62 Park Place, New York 7, N.Y.

- CHICAGO PNEUMATIC TOOL CO., 6 E. 44th St., New York 17, N.Y.

- GOODALL RUBBER CO., 403 Whitehead Road, Trenton 4, N.J.

- B. F. GOODRICH CO., Akron 11, Ohio

- THE GOODYEAR TIRE & RUBBER CO., INC., 1144 E. Market St., Akron 16, Ohio

- HETHERINGTON & BERNER, INC., 701 Kentucky Ave., Indianapolis 7, Ind.

- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.

- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.

- JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.

- REPUBLIC RUBBER DIV., Lee Rubber & Tire Corp., Albert Street, Youngstown 1, Ohio

- LINCOLN ENGINEERING CO., 5701 Natural Bridge Ave., St. Louis 20, Mo.

- MARTIN ENGINEERING CO., 704 Rock Place, Kewanee, Ill.

- PANGBORN CORP., Hagerstown, Md.

- PIONEER RUBBER MILLS, 353 Sacramento St., San Francisco 11, Calif.

- QUAKER RUBBER CORP., DIV. OF H. K. PORTER CO., INC., OF PITTSBURGH, Tacony & Comly Sts., Philadelphia 24, Pa.

- RAYBESTOS DIV., RAYBESTOS-MANHATTAN, INC., 75 E. Main St., Stratford, Conn.

- RAYBESTOS-MANHATTAN, INC., MANHATTAN RUBBER DIV., 61 Willett St., Passaic, N.J.

- RODGERS HYDRAULIC, INC., 7401 Walker St., Minneapolis 16, Minn.

- THERMOID CO., Trenton, N.J.

- UNITED STATES RUBBER CO., 1230 Ave. of the Americas, New York 20, N.Y.

HOSE FITTINGS

- AERO-COUPPLING CORP., 3015 Winona Ave., Burbank, Calif.
- AEROQUIP CORP., 300 S. East Ave., Jackson, Mich.
- THE AMERICAN RUBBER MANUFACTURING COMPANY, 1145 Park Avenue, Oakland 8, California
- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- BOSTON WOVEN HOSE & RUBBER COMPANY, P. O. Box 1071, Boston 3, Massachusetts
- CARLYLE RUBBER CO., INC., 62 Park Place, New York 7, N.Y.
- CHICAGO PNEUMATIC TOOL CO., 6 East 44th St., New York 17, N.Y.
- DIXON VALVE & COUPLING CO., Hancock St. & Columbia Ave., Philadelphia 22, Pa.
- HOSE ACCESSORIES CO., Lehigh Ave. at 17th St., Philadelphia 32, Pa.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- LINCOLN ENGINEERING CO., 5701 Natural Bridge Ave., St. Louis 20, Mo.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

- **PIONEER RUBBER MILLS**, 353 Sacramento St., San Francisco 11, Calif.
- **RAYBESTOS-MANHATTAN, INC.**, MANHATTAN RUBBER DIV., 61 Willett St., Passaic, N.J.
- **THERMOID CO.**, Trenton, N.J.
- **VICTOR EQUIPMENT CO.**, 844 Folsom St., San Francisco 7, Calif.
- **WORTHINGTON CORP.**, So. 2nd St., Plainfield, N.J.

HULLS, Dredge (see Dredges)

HUMIDIFIERS, Laboratory (see Laboratory Apparatus)

HYDRAULIC CYLINDERS

- **THE COMMERCIAL SHEARING & STAMPING CO.**, 1775 Logan Ave., P.O. Box 719, Youngstown 1, Ohio
- **THE GALION ALL STEEL BODY CO.**, 605 S. Market Street, Galion, Ohio
- **GAR WOOD IND., INC.**, Wayne Division, Wayne, Mich.
- **NATIONAL LIFT CO.**, 800 Lowell St., Ypsilanti, Mich.
- **ST. PAUL HYDRAULIC HOIST**, 2207 University Ave., Minneapolis 14, Minn.

HYDRATORS, Lime

- **THE DORR CO. ENGRS.**, Barry Place, Stamford, Conn.
- **HARDINGE CO., INC.**, 240 Arch St., York, Pa.
- **W. P. HEINEKEN, INC.**, 50 Broad St., New York 3, N.Y.
- **NORDBERG MFG. CO.**, 3073 S. Chase Ave., Milwaukee 1, Wisc.
- **TRAYLOR ENGINEERING & MFG. CO.**, Allentown, Pa.
- **VULCAN IRON WORKS**, 730 So. Main St., Wilkes-Barre, Pa.

HYDROSEPARATORS (see Sand Recovery Machinery)

I

IDLERS, Conveyor (see Conveyor Idlers)

INDICATORS, Bin (see Bin Level Indicators)

INSULATION, Heat (see Refractories)

INSTRUMENTS, Process Control

- **ARNOLD O. BECKMAN, INC.**, 1020 Mission St., South Pasadena, Calif.
- **BROWN INSTRUMENT CO.**, Wayne & Roberts Ave., Philadelphia, Pa.
- **THE FOXBORO CO.**, 38 Neponset Ave., Foxboro, Mass.
- **GENERAL ELECTRIC CO.**, 1 River Road, Schenectady 5, N.Y.
- **THE HAYS CORP.**, 742 East 8th St., Michigan City 21, Ind.

J

JACKS, Hydraulic

- **THE BUDA COMPANY**, 154th & Commercial, Harvey, Illinois
- **RODGERS HYDRAULIC, INC.**, 7401 Walker St., Minneapolis 16, Minn.

JIGS, Sand and Gravel

- **DENVER EQUIPMENT CO.**, 1400 17th Street, P.O. Box 5268, Denver 17, Colo.
- **STRAUB MFG. CO., INC.**, 507 Chestnut St., Oakland 20, Calif.
- **YUBA MFG. CO.**, 351 California St., San Francisco 4, Calif.

K

KETTLES, Gypsum, Calcining

- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, New York

KILN PARTS, ENDS, ETC.

- **AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO.**, 389 E. 14th St., Chicago Heights, Ill.
- **ELECTRIC STEEL FOUNDRY CO.**, 2141 N.W. 25th Ave., Portland 10, Ore.
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, New York
- **F. L. SMIDTH & CO.**, 11 West 42nd St., New York 36, N.Y.
- **STROH PROCESS STEEL CO.**, 1428 High St. N. S., Pittsburgh 12, Pa.

KILNS, Curing, Concrete

- **ANCHOR CONCRETE MACHINERY CO.**, 1191 Fairview Ave., Columbus 12, Ohio
- **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington
- **JACKSON & CHURCH CO.**, 321 N. Hamilton St., Saginaw, Mich.
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, New York
- **LITTLEFORD BROS., INC.**, 453 E. Pearl St., Cincinnati 2, Ohio
- **SHORE ENGINEERING**, 322 Broadway, New York 7, New York
- **STORM, INC.**, 845-92nd Ave., Oakland 3, Calif.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, New York

KILNS, Lime, Vertical

- **THE ELLERMAN CO.**, 1210 Continental Bank Bldg., Salt Lake City 1, Utah
- **HARDINGE CO., INC.**, 240 Arch St., York, Pa.
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, New York
- **NICHOLS ENGINEERING & RESEARCH CORP.**, 70 Pine St., New York 5, N.Y.
- **VULCAN IRON WORKS**, 730 So. Main St., Wilkes-Barre, Pa.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, New York

KILNS, Rotary, Cement, Gypsum, Lime

- **ALLIS-CHALMERS MFG. CO.**, 975 So. 70th St., Milwaukee 1, Wisc.
- **BETHLEHEM STEEL CO.**, Third Street, Bethlehem, Penn.
- **HARDINGE CO., INC.**, 240 Arch St., York, Pa.
- **W. P. HEINEKEN, INC.**, 50 Broad St., New York 3, N.Y.
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, New York
- **NORDBERG MFG. CO.**, 3073 S. Chase Ave., Milwaukee 1, Wisc.
- **THE SALEM TOOL CO.**, 767 S. Ellsworth Ave., Salem, Ohio
- **F. L. SMIDTH & CO.**, 11 West 42nd St., New York 36, N.Y.

- **STANDARD STEEL CORP.**, 5036 Boyle Ave., Los Angeles 58, Calif.
- **R. C. STANHOPE, INC.**, 60 E. 42nd St., New York, N.Y.
- **TRAYLOR ENGINEERING & MFG. CO.**, Allentown, Pa.
- **VULCAN IRON WORKS**, 730 So. Main St., Wilkes-Barre, Pa.
- **RICHARD P. WALSH CO.**, 30 Church St., New York, New York

KILN DOORS (Circle Curing Room Doors)

L

LABORATORY APPARATUS

- **BALDWIN-LIMA-HAMILTON CORP.**, Eddystone Div., Philadelphia 42, Pa.
- **DENVER EQUIPMENT CO.**, 1400 17th Street, P.O. Box 5268, Denver 17, Colo.
- **FORNEY'S INC.**, Elm & Russell Sts., New Castle, Pa.
- **THE GALIGHIER CO.**, 545 W. 8th South St., Salt Lake City 4, Utah
- **GENERAL ELECTRIC CO.**, 1 River Road, Schenectady 5, N.Y.
- **GENERAL SCIENTIFIC EQUIPMENT CO.**, 2735 W. Huntingdon St., Philadelphia 32, Pa.
- **THE HAYS CORP.**, 742 East 8th St., Michigan City 21, Ind.
- **HUMBOLDT MFG. CO.**, 2014 N. Whipple St., Chicago 47, Ill.
- **INTERNATIONAL HARVESTER CO.**, 180 N. Michigan Ave., Chicago 1, Ill.
- **THE MINE & SMELTER SUPPLY CO.**, 17th & Blake, Denver 17, Colo.
- **F. L. SMIDTH & CO.**, 11 W. 42nd St., New York 36, N.Y.
- **SPERRY PRODUCTS, INC.**, Shelter Rock Rd., Danbury, Conn.
- **STURTEVANT MILL COMPANY**, 102 Clayton St., Dorchester, Boston 22, Mass.
- **THE W. S. TYLER CO.**, 3615 Superior Ave., Cleveland 14, Ohio
- **UNIVERSAL VIBRATING SCREEN CO.**, Deane Blvd. & St. Paul RR., Racine, Wisc.
- **WESTERN MACHINERY CO.**, 760 Folsom St., San Francisco 7, Calif.

LABORATORIES, Testing

- **BALDWIN-LIMA-HAMILTON CORP.**, Eddystone Div., Philadelphia 42, Pa.
- **DENVER EQUIPMENT CO.**, 1400 17th Street, P.O. Box 5268, Denver 17, Colo.
- **THE GALIGHIER CO.**, 545 W. 8th South St., Salt Lake City 4, Utah
- **GENERAL ELECTRIC CO.**, 1 River Road, Schenectady 5, N.Y.
- **WESTERN MACHINERY CO.**, 760 Folsom St., San Francisco 7, Calif.

LACING, Belt (see Belt Fasteners & Lacing)

LADDERS, Dredge

- **AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO.**, 389 E. 14th St., Chicago Heights, Ill.
- **EAGLE IRON WORKS**, 127 Holcomb Ave., Des Moines 4, Iowa
- **MORRIS MACHINE WORKS**, E. Genesee St., Baldwinsville, N.Y.
- **YUBA MFG. CO.**, 351 California St., San Francisco 4, Calif.

LAUNDERS (see Chutes)

LIFT TRUCKS, Concrete Products, etc.

- 1. Gas
- 2. Electric
- 3. Gas-Electric
- **ANCHOR CONCRETE MACHINERY CO.**, 1191 Fairview Ave., Columbus 12, Ohio
- 1-2-3
- **BICKERSTAFF, INC.**, Columbus, Ga.
- 1
- **THE BUDA COMPANY**, 154th & Commercial, Harvey, Illinois
- 1
- **CLARK EQUIPMENT CO.**, Industrial Truck Div., Battle Creek 60, Mich.
- 1-2
- **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington
- 1-2-3
- **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo.
- 1-2-3
- **EASTON CAR & CONSTRUCTION CO.**, Easton, Pa.
- 2-3
- **ERICKSON POWER LIFT TRUCKS, INC.**, 1401 Marshall St. N.E., Minneapolis 13, Minn.
- 1
- **GERLINGER CARRIER CO.**, Dallas, Ore.
- 1
- **HYSTER COMPANY**, 2918 N.E. Clackamas St., Portland 8, Ore.
- 1
- **THE KNICKERBOCKER CO.**, Truckman Div., 603 Liberty St., Jackson, Mich.
- 1
- **KWIK MIX CO.**, Port Washington, Wisc.
- 1
- **LIFT TRUCKS, INC.**, 2425 Spring Grove Ave., Cincinnati 14, Ohio
- 2
- **MOBILIFT CORP.**, 835 S.E. Main St., Portland 14, Ore.
- 1
- **THE READY-POWER CO.**, 11231 Freud Ave., Detroit 14, Mich.
- 3
- **TRACTO-LIFT COMPANY**, 800 E. 18th St., Kansas City 8, Mo.
- 1-2-3
- **TRUAX MACHINE & TOOL CO.**, 16 Michigan St., Seattle 8, Wash.
- 1
- **THE YALE & TOWNE MFG. CO.**, Roosevelt Blvd. & Haldeman Ave., Philadelphia 15, Pa.
- 1-2-3

LIGHTERS, Fuse (see Blasting Supplies)

LIME KILNS (see Kilns)

LIME AND LIMESTONE SPREADERS

- **BAUGHMAN MFG. CO., INC.**, Shipman Road, Jerseyville, Ill.
- **FLINK CO.**, 502 N. Vermillion St., Streator, Ill.
- **HERCULES STEEL PROD. CORP.**, Sherman Street, Galion, Ohio
- **HIGHWAY EQUIPMENT CO., INC.**, 623 D Ave. N.W., Cedar Rapids, Iowa
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, New York

LIME MORTARS & PUTTY PLANTS

- **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo.

LIME PLANTS

- **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- F. L. SMIDTH & CO., 11 W. 42nd St., New York 36, N.Y.
- STURTEVANT MILL COMPANY, 102 Clayton St., Dorchester, Boston 22, Mass.
- UNIVERSAL ENGINEERING CORP., 625 C Ave. N.W., Cedar Rapids, Iowa

LINERS, Kiln (see Refractories)

LINERS, METAL, Grinding Mill

- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.
- AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.
- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- DENVER EQUIPMENT CO., 1400 17th St., P.O. Box 5268, Denver 17, Colo.
- ELECTRIC STEEL FOUNDRY CO., 2141 N.W. 25th Ave., Portland 10, Ore.
- HARDINGE CO., INC., 240 Arch St., York, Pa.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- F. L. SMIDTH & CO., 11 West 42nd St., New York 36, N.Y.
- TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.
- THOMAS FOUNDRIES, INC., 3800 10th Ave., P.O. Box 1111, Birmingham 1, Ala.
- UNITED STATES STEEL CORP., 525 William Penn Place, Pittsburgh 30, Pa.

LINERS, Pump, Metal

- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- GARDNER-DENVER CO., Quincy, Ill.
- PETTIBONE MULLIKEN CORP., 4700 W. Division St., Chicago 31, Ill.
- STOODY CO., Whittier, Calif.
- TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.
- THOMAS FOUNDRIES, INC., 3800 10th Ave., P.O. Box 1111, Birmingham 1, Ala.

LINERS, Pump, Rubber

- DENVER EQUIPMENT CO., 1400 17th St., P.O. Box 5268, Denver 17, Colo.
- THE GALIGHIER CO., 545 W. 8th South St., Salt Lake City 4, Utah
- GARDNER-DENVER CO., Quincy, Ill.
- GOODALL RUBBER CO., 403 Whitehead Road, Trenton 4, N. J.
- PIONEER RUBBER MILLS, 353 Sacramento St., San Francisco 11, Calif.
- UNITED STATES RUBBER CO., 1230 Ave. of the Americas, New York 20, N.Y.

LININGS, CHUTE (see Chute Linings)

LOADERS

1. Boat
2. Car
3. Truck

ANCHOR CONCRETE MACHINERY CO., 1191 Fairview Ave., Columbus 12, Ohio
1-2-3

AMERICAN HOIST AND DERRICK COMPANY, 63 South Robert St., St. Paul 1, Minnesota
3

ATHEY PRODUCTS CORP., 5631 W. 65th St., Chicago 38, Ill.
3

• BARBER-GREENE CO., 400 N. Highland Ave., Aurora, Ill.
2-3

• BAUGHMAN MFG. CO., INC., Shipman Road, Jerseyville, Ill.
2-3

• BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
3

• BONDED SCALE AND MACHINE CO., 2193 S. Third St., Columbus 7, Ohio
2-3

EAGLE CRUSHER CO., INC., 900 Harding Way East, Gallon, Ohio
3

THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio
2-3

FLEXOVEYOR MFG. CO., 1220 S. Acama St., Denver 19, Colo.
2-3

THE GALION ALLSTEEL BODY CO., 605 S. Market St., Gallon, Ohio
3

GEO HAISS MFG. CO., INC., Div. Pettibone Mulliken Corp., 350 Fifth Ave., New York 1, N.Y.
3

• THE FRANK G. HOUGH CO., 939 Sunnyside Ave., Libertyville, Ill.
2-3

• THE JAEGER MACHINE CO., 550 W. Spring St., Columbus 16, Ohio
3

• C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
3

• JOY MFG. CO., Henry W. Oliver Bldg., Pittsburgh 22, Pa.
2-3

• KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
1-2-3

• LINK-BELT CO., 307 N. Michigan Ave., Chicago 1, Ill.
2

• N. P. NELSON IRON WORKS, INC., 820 Bloomfield Ave., Clifton, N. J.
3

• PETTIBONE MULLIKEN CORP., 4700 W. Division St., Chicago 31, Ill.
2-3

• STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora, Ill.
1-2-3

TRIANGLE ENGINEERING CO., 2948 W. 26th St., Chicago 23, Ill.
3

• WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
2-3

• WILLARD CONCRETE MACHINERY CO., LTD., 11700 Wright Rd., Lynwood, Calif.
3

LOADERS

1. Tractor
2. Underground

• ALLIS-CHALMERS MFG. CO., Tractor Division, Milwaukee 1, Wisc.
1

ATHAY PRODUCTS CORP., 5631 W. 65th St., Chicago 38, Ill.
1

• THE BAKER-LULL CORPORATION, 314 West 90th Street, Minneapolis 20, Minnesota
1

• BONDED SCALE AND MACHINE CO., 2193 S. Third St., Columbus 7, Ohio
2

J. I. CASE COMPANY, 700 State Street, Racine, Wisconsin
1

DROTT MFG. CORP., 3841 W. Wisconsin Ave., Milwaukee 8, Wisc.
1

• GARDNER-DENVER CO., Quincy, Ill.
2

GEO. HAISS MFG. CO., INC., Div. Pettibone Mulliken Corp., 350 Fifth Ave., New York 1, N.Y.
1

• THE FRANK G. HOUGH CO., 939 Sunnyside Ave., Libertyville, Ill.
1

• INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago 1, Ill.
1

• THE JAEGER MACHINE CO., 550 W. Spring St., Columbus 16, Ohio
1

• LESSMANN MFG. CO., E. 20 and Easton Blvd., Des Moines 4, Iowa
1

• LEROI CO., 1706 S. 68th St., Milwaukee 14, Wisc.
1

• THE OLIVER CORP., 400 W. Madison St., Chicago 6, Ill.
1

• ROGERS IRON WORKS CO., Joplin, Mo.
2

RICHARD P. WALSH CO., 30 Church St., New York, New York
1

LOADERS, Block

• BUILDERS EQUIPMENT COMPANY, 4012 N. Central Avenue, Phoenix, Arizona
2

LOCOMOTIVES

1. Diesel
2. Electric
3. Gasoline
4. Oil (L.P.G.)
5. Storage Battery

• BALDWIN-LIMA-HAMILTON CORP., Eddystone Div., Philadelphia 42, Pa.
1-2

DAVENPORT BESLER CORP., 2305 Rockingham Road, Davenport Iowa
1-2-3-4

• GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.
1-2

• PLYMOUTH LOCOMOTIVE WORKS, DIV. OF THE FATE ROOT HEATH CO., Plymouth, Ohio
1-3

• VULCAN IRON WORKS, 730 So. Main St., Wilkes-Barre, Pa.
1-2-3-4-5

LOCOMOTIVES

1. Diesel-Electric
2. Gasoline-Electric
3. Oil (L.P.G.)-Electric

• BALDWIN-LIMA-HAMILTON CORP., Eddystone Div., Philadelphia 42, Pa.
1

DAVENPORT BESLER CORP., 2305 Rockingham Road, Davenport, Iowa
1-2-3

DIFFERENTIAL STEEL CAR CO., Findlay, Ohio
3

• GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.
1-2-3

• PLYMOUTH LOCOMOTIVE WORKS, DIV. OF THE FATE ROOT HEATH CO., Plymouth, Ohio
1

• VULCAN IRON WORKS, 730 So. Main St., Wilkes-Barre, Pa.
1-2-3

LOG WASHERS, Aggregates (see Scrubbers)

LORRIES, WEIGH (see Weigh Lorries)

LUBRICANTS, Grease, Oil, etc.

• ALEMITE DIV., STEWART-WARNER CORP., 1826 Diversey Pkwy., Chicago 14, Ill.

FISKE BROS. REFINING CO., LUBRICATE DIV., 129 Lockwood St., Newark 5, N. J.

• GULF OIL CORP., GULF REFINING CO., Gulf Bldg., Pittsburgh 30, Pa.

E. F. HOUGHTON & CO., 303 W. Lehigh Ave., Philadelphia 33, Pa.

NEW YORK & NEW JERSEY LUBRICANT CO., 292 Madison Ave., New York 17, N.Y.

SHELL OIL COMPANY, 50 W. 50th St., New York, N.Y.

SINCLAIR REFINING CO., 600 Fifth Ave., New York 20, N.Y.

SUN OIL COMPANY, 1608 Walnut St., Philadelphia 3, Pa.

SWAN-FINCH OIL CORP., 205 E. 42nd St., New York 17, N.Y.

• THE TEXAS COMPANY, 135 East 42nd St., New York 17, N.Y.

LUBRICANTS, Wire Rope

• AMERICAN STEEL & WIRE DIV., UNITED STATES STEEL CORP., 614 Superior Ave. N.W., Rockefeller Bldg., Cleveland 13, Ohio

• ALEMITE DIV., STEWART-WARNER CORP., 1826 Diversey Pkwy., Chicago 14, Ill.

FISKE BROS. REFINING CO., LUBRICATE DIV., 129 Lockwood St., Newark 5, N. J.

• GULF OIL CORP., GULF REFINING CO., Gulf Bldg., Pittsburgh 30, Pa.

E. F. HOUGHTON & CO., 303 W. Lehigh Ave., Philadelphia 33, Pa.

• JONES & LAUGHLIN STEEL CORP., 3 Gateway Center, Pittsburgh 30, Pa.

• LESCHEN WIRE ROPE DIV., 5909 Kennerly Ave., St. Louis 12, Mo.

• MACWHYTE COMPANY, 2949-14th Ave., Kenosha, Wisc.

NEW YORK & NEW JERSEY LUBRICANT CO., 292 Madison Ave., New York 17, N.Y.

• SAUERMAN BROS., INC., 530 S. Clinton St., Chicago 7, Ill.

SHELL OIL COMPANY, 50 W. 50th St., New York, N.Y.

SINCLAIR REFINING CO., 600 Fifth Ave., New York 20, N.Y.

SWAN-FINCH OIL CORP., 205 E. 42nd St., New York 17, N.Y.

• THE TEXAS COMPANY, 135 East 42nd St., New York 17, N.Y.

LUBRICATING SYSTEMS

• ALEMITE DIV., STEWART-WARNER CORP., 1826 Diversey Pkwy., Chicago 14, Ill.

THE FARVAL CORP., 3249 E. 80th St., Cleveland 4, Ohio

LINCOLN ENGINEERING CO., 5701 Natural Bridge Ave., St. Louis 20, Mo.

• VICTOR EQUIPMENT CO., 844 Folsom St., San Francisco 7, Calif.

M

MAGNETIC SEPARATORS

THE HOMER MFG. CO., INC., Dept. 205, Lima, Ohio

• THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio

• RADIO CORP. OF AMERICA, RCA VICTOR DIV., Front & Cooper Sts., Camden 2, N. J.

• STEARNS MAGNETIC, INC., 675 S. 28th St., Milwaukee 46, Wisc.

MASONRY COLORS (see Cement and Masonry Colors)

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

MASONRY SAWS

- CHAMPION MFG. COMPANY, 2028 Washington Ave., St. Louis 3, Mo.
- CLIPPER MFG. CO., 2800 Warwick, Kansas City 8, Missouri
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- EVEAREY BIKSAW CO., 1509 S. Michigan Blvd., Chicago 5, Ill.
- FLEMING MFG. CO., Dept. C, Fleming Ave., Cuba, Mo.

MEASURING DEVICES

1. Weight
2. Volumetric (See Batches)

METERS

1. Electric
 2. Water
 3. Other Fluids
- BAILEY METER CO., 1050 Ivanhoe Road, Cleveland 10, Ohio 2-3
 - COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington 2
 - CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo. 2
 - THE FOXBORO CO., 38 Neponset Ave., Foxboro, Mass. 2-3
 - GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y. 1
 - THE HAYS CORP., 742 East 8th St., Michigan City 21, Ind. 3
 - NEPTUNE METER CO., 50 W. 50th St., New York 20, N.Y. 2-3

MILLS, Grinding

1. Ball
 2. Compartment
 3. Laboratory
 - A. Pneumatic
 4. Rod
 5. Roll Type
 6. Tube
- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc. 1-2-3-4-5-6
 - AMERICAN PULVERIZER COMPANY, 1245 Mackland Avenue, St. Louis 10, Missouri 3
 - AMERICAN BRAKE SHOE COMPANY, 230 Park Avenue, New York 17, New York 1
 - THE BABCOCK & WILCOX CO., 161 W. 42nd St., New York 17, N.Y. 1
 - BRADLEY PULVERIZER CO., 123 S. Third St., Allentown, Pa. A-5
 - BROOKS EQUIPMENT & MFG. CO., 2018 Davenport Road, Knoxville 8, Tenn. 1
 - THE COLORADO FUEL AND IRON CORP., Wickwire Spencer Steel Division, 575 Madison Avenue, New York 22, New York 1
 - DENVER EQUIPMENT CO., 1400 17th Street, P.O. Box 5268, Denver 17, Colo. 1-3-4-6
 - THE GALIGHER CO., 545 W. 8th South St., Salt Lake City 4, Utah 3
 - COMBUSTION ENGINEERING, INC., RAYMOND DIV., 1315 N. Branch St., Chicago 22, Ill. 3
 - GRUENDLER CRUSHER & PULV. CO., 2915 N. Market St., St. Louis 6, Mo. 1
 - HARDINGE CO., INC., 240 Arch St., York, Pa. 1-2-3-4-5-6

- W. P. HEINEKEN, INC., 50 Broad St., New York 3, N.Y. 1-2-3-4-5-6
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa 1
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio 1
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York 1-2-3-4-5-6
- MCCALLY PITTSBURG MFG. CORP., W. Third St., Pittsburgh, Pa. 1
- THE MINE & SMELTER SUPPLY CO., 17th & Blake, Denver 17, Colo. 1-3-4-6
- NORDBERG MFG. CO., 3073 S. Chase Ave., Milwaukee 1, Wisc. 1-2-4-6
- F. L. SMIDT & CO., 11 West 42nd St., New York 36, N.Y. 1-2-6
- SPROUT WALDRON & CO., INC., Muncy, Pa. 3
- THE STEARNS-ROGER MFG. CO., 1720 California St., Denver 2, Colo. 1-4
- STRAUB MFG. CO., INC., 507 Chestnut St., Oakland 20, Calif. 1-3-4-6
- STURTEVANT MILL COMPANY, 102 Clayton St., Dorchester, Boston 22, Mass. 3-5
- TRAYLOR ENGINEERING & MFG. CO., Allentown, Pa. 1-2-4-6
- UNITED STATES STEEL CORP., 525 William Penn Place, Pittsburgh 30, Pa. 1
- UNIVERSAL ENGINEERING CORP., 625 C Ave. N.W., Cedar Rapids, Iowa 1
- VULCAN IRON WORKS, 730 So. Main St., Wilkes-Barre, Pa. 1-6
- RICHARD P. WALSH CO., 30 Church St., New York, New York 1
- WESTERN MACHINERY CO., 760 Folsom St., San Francisco 7, Calif. 4
- WILLIAMS PATENT CRUSHER & PULVERIZER CO., INC., 813 Montgomery St., St. Louis 6, Mo. 3

MILLS, Washing (see Scrubbers)

MILLS, Hammer (see Crushers, Hammer)

MIXER BODIES, Truck (see Bodies)

MIXERS, Concrete (see Concrete Mixers)

MIXERS, Plaster & Mortar

- J. W. APPEL & SON, INC., 831 9th Street North, St. Petersburg 2, Florida
- CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
- CONCRETE MACHINERY CO., P.O. Drawer 60, Hickory, N.C.
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- GILSON BROTHERS CO., Fredonia, Wisc.
- THE JAEGER MACHINE CO., 550 W. Spring St., Columbus 16, Ohio
- TRUCK-MAN DIV., THE KNICKERBOCKER CO., 603 Liberty St., Jackson, Mich.

- KWIK MIX COMPANY, Port Washington, Wisc.
- MULTIPLEX MACHINERY CO., Div. of Multipack, Inc., Fremont St., Elmore, Ohio
- WORTHINGTON CORP., So. 2nd St., Plainfield, N. J.

MIXERS, Pugmill

- BARBER-GREENE CO., 400 N. Highland Ave., Aurora, Ill.
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- GRUENDLER CRUSHER & PULV. CO., 2915 N. Market St., St. Louis 6, Mo.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- KWIK MIX COMPANY, Port Washington, Wisc.
- LINK-BELT CO., 307 N. Michigan Ave., Chicago 1, Ill.
- PIONEER ENGINEERING WORKS, INC., 1515 Central Ave. N.E., Minneapolis 13, Minn.
- SINTERING MACHINERY CORP., Netcong, N. J.
- STURTEVANT MILL CO., 102 Clayton St., Dorchester, Boston 22, Mass.
- RICHARD P. WALSH CO., 30 Church St., New York, New York

MIXERS, Slurry (see Slurry Mixers)

MORTAR COLORS (see Cement and Masonry Colors)

MOTOR TRACTORS, Off-Highway

1. Diesel
 2. Gas
- ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin 1-2
 - ALLIS-CHALMERS MFG. CO., Tractor Division, Milwaukee 1, Wisc. 2
 - CATERPILLAR TRACTOR CO., Peoria 8, Ill. 1
 - THE EUCLID ROAD MACHINERY CO., 1361 Chardon Road, Cleveland 17, Ohio 1
 - INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago 1, Ill. 1-2
 - MACK TRUCKS, INC., Empire State Bldg., New York 1, N.Y. 1-2
 - THE YALE & TOWNE MFG. CO., Roosevelt Blvd. & Haldeman Ave., Philadelphia 15, Pa. 1-2

MOTOR TRUCK CONCRETE MIXERS (see Bodies)

MOTOR TRUCK DRIVES AND DIFFERENTIALS, Special

- AMERICAN STEEL FOUNDRIES, 410 N. Michigan Ave., Chicago 11, Ill.
- COOK BROS. EQUIPMENT CO., 3334 San Fernando Road, Los Angeles 65, Calif.
- INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago 1, Ill.
- MARMON-HERRINGTON CO., INC., 1511 W. Washington St., Indianapolis 7, Ind.

MOTOR TRUCKS, Highway

- COOK BROS. EQUIPMENT CO., 3334 San Fernando Road, Los Angeles 65, Calif.
- GERLINGER CARRIER CO., Dallas, Ore.
- INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago 1, Ill.
- MACK TRUCKS, INC., Empire State Bldg., New York 1, N.Y.
- THE WHITE MOTOR CO., 842 E. 79th St., Cleveland 1, Ohio

MOTOR TRUCKS, Off-Highway End, Side, Bottom, Dump, etc.

- ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin
- ALLIS-CHALMERS MFG. CO., Tractor Division, Milwaukee 1, Wisc.
- COOK BROS. EQUIPMENT CO., 3334 San Fernando Road, Los Angeles 65, Calif.
- DART TRUCK CO., 2623 Oak St., Kansas City 8, Mo.
- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- THE EUCLID ROAD MACHINERY CO., 1361 Chardon Road, Cleveland 17, Ohio
- THE GALION ALLSTEEL BODY CO., 605 S. Market Street, Gallon, Ohio
- GERLINGER CARRIER CO., Dallas, Ore.
- INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago 1, Ill.
- KOEHNING COMPANY, 3026 W. Concordia Ave., Milwaukee 16, Wisc.
- LE TOURNEAU-WESTINGHOUSE CO., 2301 N. Adams St., Peoria 3, Ill.
- MACK TRUCKS, INC., Empire State Bldg., New York 1, N.Y.
- MARMON-HERRINGTON CO., INC., 1511 W. Washington St., Indianapolis 7, Ind.
- THE WHITE MOTOR CO., 842 E. 79th St., Cleveland 1, Ohio
- THE YALE & TOWNE MFG. CO., Roosevelt Blvd. & Haldeman Ave., Philadelphia 15, Pa.

MOTOR TRUCK TRACTORS, Highway

1. Diesel
 2. Gasoline
- COOK BROS. EQUIPMENT CO., 3334 San Fernando Road, Los Angeles 65, Calif. 1-2
 - INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago 1, Ill. 1-2
 - MACK TRUCKS, INC., Empire State Bldg., New York 1, N.Y. 1-2
 - MARMON-HERRINGTON CO., INC., 1511 W. Washington St., Indianapolis 7, Ind. 1-2
 - THE WHITE MOTOR CO., 842 E. 79th St., Cleveland 1, Ohio 1-2

MOTORS (see Electric Motors)

N

NOZZLES, Spray

- AMERICAN BRAKE SHOE CO., 230 Park Avenue, New York 17, N.Y.
- BOSTON WOVEN HOSE & RUBBER COMPANY, P.O. Box 1071, Boston 3, Massachusetts
- CARLYLE RUBBER CO., INC., 62 Park Place, New York City 7, N.Y.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

- CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
- DEISTER MACHINE CO., 1933 E. Wayne St., Fort Wayne 4, Ind.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- LINCOLN ENGINEERING CO., 5701 Natural Bridge Ave., St. Louis 20, Mo.
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.

NOZZLES, Washing

- BOSTON WOVEN HOSE & RUBBER COMPANY, P.O. Box 1071, Boston 3, Massachusetts
- CARLILE RUBBER CO., INC., 62 Park Place, New York City 7, New York
- THE DEISTER CONCENTRATOR CO., 935 Glasgow Ave., Fort Wayne 1, Ind.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa

O

OFFBEARERS, Power, Concrete Block

- ANCHOR CONCRETE MACHINERY CO., 1191 Fairview Ave., Columbus 12, Ohio
- BERGEN MACHINE & TOOL CO., INC., 189 Franklin Avenue, Nutley 10, New Jersey
- F. C. GEORGE MACHINE CO., INC., 100 S. Westmoreland Drive, Orlando, Fla.
- MULTIPLEX MACHINERY CO., Div. of Multipack, Inc., Fremont St., Elmore, Ohio
- THE GENE OLSEN CORP., 401 Grace St., Adrian, Mich.
- STEARNS MFG. CO., INC., 600 E. Beecher, Adrian, Mich.

OIL BURNERS

- CLEAVER-BROOKS CO., 326 E. Keefe Ave., Milwaukee 12, Wisc.
- COEN CO., 40 Boardman Place, San Francisco, Calif.
- HAUCK MANUFACTURING COMPANY, 124-136 Tenth Street, Brooklyn 13, New York
- JOHNSTON MFG. CO., 2825 E. Hennepin Ave., Minneapolis 13, Minn.
- LITTLEFORD BROS., INC., 453 E. Pearl St., Cincinnati 2, Ohio
- NATIONAL AIRCRAFT BURNER CO., 1298 E. Sedgley Ave., Philadelphia 34, Pa.
- F. L. SMITH & CO., 11 West 42nd St., New York 36, N.Y.

OIL FILTERS

- HAUCK MANUFACTURING COMPANY, 124-136 Tenth Street, Brooklyn 13, New York
- LINCOLN ENGINEERING CO., 5701 Natural Bridge Ave., St. Louis 20, Mo.
- WINSLOW ENGINEERING CO., 4069 Hollis St., Oakland, Calif.

OIL, Lubricants (see Lubricants)

P

PALLETS, Concrete Products

1. Steel
 2. Wood
 3. Other
- ANCHOR CONCRETE MACHINERY CO., 1191 Fairview Ave., Columbus 12, Ohio

- J. W. APPLEY & SON, INC., 831 9th Street North, St. Petersburg 2, Florida
- CHASE CONCRETE MACHINERY CO., 94 Grandview Ave., Buffalo 23, N.Y.

- THE COMMERCIAL SHEARING & STAMPING CO., 1773 Logan Ave., P. O. Box 719, Youngstown 1, Ohio

- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- CONCRETE MACHINERY CO., P.O. Drawer 60, Hickory, N.C.

- FLEMING MFG. CO., Dept. C, Fleming Ave., Cuba, Mo.
- L. B. FOSTER CO., P.O. Box 1647, Pittsburgh 30, Pa.

- GENERAL ENGINES CO., INC., 307 Hunter St., Gloucester City, N. J.

- F. C. GEORGE MACHINE CO., INC., 100 S. Westmoreland Drive, Orlando, Fla.
- MILLER EQUIPMENT CO., INC., P. O. Box 1566, Salisbury, Md.

- MULTIPLEX MACHINERY CO., Div. of Multipack, Inc., Fremont St., Elmore, Ohio
- THE GENE OLSEN CORP., 401 Grace St., Adrian, Mich.

- WITTEMANN MACHINERY CO., Farmingdale, N. J.

PALLET CLEANERS

- BERGEN MACHINE & TOOL COMPANY, INC., 189 Franklin Avenue, Nutley 10, New Jersey
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- FLEMING MFG. CO., Dept. C, Fleming Ave., Cuba, Mo.

PANEL BOARDS, Electric

- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.
- THE HAYS CORP., 742 E. 8th St., Michigan City 21, Ind.
- JOHNS-MANVILLE, 22 East 40th St., New York 16, N.Y.
- M & M ENGR. CORP., 1017 W. 23rd St., Indianapolis 23, Ind.

PANS, GRINDING, Wet and Dry

- EAGLE IRON WORKS, 127 Holcomb Ave., Des Moines 4, Iowa
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- McLANAHAN & STONE CORP., Wall & Jackson Sts., Hollidaysburg, Pa.

PANS, APRON, CONVEYOR (see Conveyors, Apron)

PERFORATED METAL (see Screen Plate)

PHOTO-ELECTRIC CELLS

- GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

PILLOW BLOCKS (see Blocks, Pillow)

PIPE, Asbestos

- JOHNS-MANVILLE, 22 E. 40th St., New York 16, N.Y.

PIPE, Dredge Standard

- NAYLOR PIPE CO., 1237 E. 92nd St., Chicago 19, Ill.
- TAYLOR FORGE & PIPE WORKS, P.O. Box 483, Chicago 90, Ill.

PIPE FITTINGS

- L. B. FOSTER CO., P.O. Box 1647, Pittsburgh 30, Pa.
- HAYNES STELLITE CO., 725 S. Lindsay, Kokomo, Ind.
- NAYLOR PIPE CO., 1237 E. 92nd St., Chicago 19, Ill.
- TAYLOR FORGE & PIPE WORKS, P.O. Box 483, Chicago 90, Ill.

PIPE, Rubber Lined

- GOODALL RUBBER CO., 403 Whitehead Road, Trenton 4, N. J.
- B. F. GOODRICH CO., Akron 11, Ohio
- PIONEER RUBBER MILLS, 353 Sacramento St., San Francisco 11, Calif.
- RAYBESTOS-MANHATTAN, INC., MANHATTAN RUBBER DIV., 61 Willett St., Passaic, N. J.
- UNITED STATES RUBBER CO., 1230 Ave. of the Americas, New York 20, N.Y.

PIPE, Steel, (Spiralwelded)

- NAYLOR PIPE CO., 1237 E. 92nd St., Chicago 19, Ill.

PLANERS, Shale

- EAGLE IRON WORKS, 127 Holcomb Ave., Des Moines 4, Iowa
- NAYLOR PIPE CO., 1237 E. 92nd St., Chicago 19, Ill.

PLASTER MIXERS (see Mixers, Plaster)

PNEUMATIC CONVEYORS (see Conveyors, Air)

POLISHING MACHINES, Concrete

- CHICAGO PNEUMATIC TOOL CO., 6 E. 44th St., New York 17, N.Y.

PONTOONS, Dredge and Pipe

- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- NAYLOR PIPE CO., 1237 E. 92nd St., Chicago 19, Ill.

PORTABLE AGGREGATES PLANTS, Crushing and Screening Plants (see Crushing and Screening Plants, Mobile Mounted)

POWDER, Blasting (see Explosives and Dynamite)

POWER STATION EQUIPMENT

- BAILEY METER COMPANY, 1050 Ivanhoe Road, Cleveland 10, Ohio
- CATERPILLAR TRACTOR CO., Peoria 8, Illinois
- DRAVO CORP., Dravo Bldg., Fifth & Liberty Aves., Pittsburgh 22, Pa.
- GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.
- THE HAYS CORP., 742 E. 8th St., Michigan City 21, Ind.

PRECIPITATORS, Dust, Electrical (see Dust Collectors, Electrical)

PREHEATERS, for Kilns, etc.

- FULLER CO., 128 Bridge St., Catasauqua, Pa.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York

PROPORTIONING EQUIPMENT (see Batchers)

PROTECTIVE COATINGS

- GOODALL RUBBER CO., 403 Whitehead Road, Trenton 4, N. J.
- A. C. HORN CO., INC., 10th St. & 44th Ave., Long Island City 1, N.Y.
- REARDON INDUSTRIES, INC., 2837 Stanton Ave., Cincinnati 6, Ohio

PULLERS, Car (see Car Movers)

PULLERS, Gear, Wheel and Bearing

- ARMSTRONG-BRAY & COMPANY, 5366 Northwest Highway, Chicago 30, Illinois
- RODGERS HYDRAULIC, INC., 7401 Walker St., Minneapolis 16, Minn.

PULLEYS, Clutch

- CONTINENTAL GIN CO., 4500 5th Ave. S., Birmingham, Ala.
- LINK-BELT CO., 307 N. Michigan Ave., Chicago 1, Ill.

PULLEYS, Conveyor and Elevator

- THE AMERICAN PULLEY CO., 4200 Wissahickon Ave., Philadelphia 29, Pa.
- BARBER-GREENE COMPANY, 400 N. Highland Avenue, Aurora, Ill.
- BAUGHMAN MFG. CO., INC., Shipman Road, Jerseyville, Illinois
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- BONDED SCALE AND MACHINE CO., 2193 S. Third St., Columbus 7, Ohio
- CONTINENTAL GIN CO., 4500 5th Ave. S., Birmingham, Ala.
- DODGE MFG. CORP., 500 S. Union St., Mishawaka, Ind.
- FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- ROGERS IRON WORKS CO., Joplin, Mo.
- SPROUT WALDRON & CO., INC., Muncy, Pa.
- TRANSALL, INC., 109 N. 11th St., Birmingham 4, Ala.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- T. B. WOODS SONS CO., 5th Ave., Chambersburg, Pa.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- ROGERS IRON WORKS CO., Joplin, Mo.
- SPROUT WALDRON & CO., INC., Muncy, Pa.
- TRANSALL, INC., 109 N. 11th St., Birmingham 4, Ala.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- T. B. WOODS SONS CO., 5th Ave., Chambersburg, Pa.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- ROGERS IRON WORKS CO., Joplin, Mo.
- SPROUT WALDRON & CO., INC., Muncy, Pa.
- TRANSALL, INC., 109 N. 11th St., Birmingham 4, Ala.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- T. B. WOODS SONS CO., 5th Ave., Chambersburg, Pa.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- ROGERS IRON WORKS CO., Joplin, Mo.
- SPROUT WALDRON & CO., INC., Muncy, Pa.
- TRANSALL, INC., 109 N. 11th St., Birmingham 4, Ala.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- T. B. WOODS SONS CO., 5th Ave., Chambersburg, Pa.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- ROGERS IRON WORKS CO., Joplin, Mo.
- SPROUT WALDRON & CO., INC., Muncy, Pa.
- TRANSALL, INC., 109 N. 11th St., Birmingham 4, Ala.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- T. B. WOODS SONS CO., 5th Ave., Chambersburg, Pa.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- ROGERS IRON WORKS CO., Joplin, Mo.
- SPROUT WALDRON & CO., INC., Muncy, Pa.
- TRANSALL, INC., 109 N. 11th St., Birmingham 4, Ala.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- T. B. WOODS SONS CO., 5th Ave., Chambersburg, Pa.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- ROGERS IRON WORKS CO., Joplin, Mo.
- SPROUT WALDRON & CO., INC., Muncy, Pa.
- TRANSALL, INC., 109 N. 11th St., Birmingham 4, Ala.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- T. B. WOODS SONS CO., 5th Ave., Chambersburg, Pa.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- ROGERS IRON WORKS CO., Joplin, Mo.
- SPROUT WALDRON & CO., INC., Muncy, Pa.
- TRANSALL, INC., 109 N. 11th St., Birmingham 4, Ala.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- T. B. WOODS SONS CO., 5th Ave., Chambersburg, Pa.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- ROGERS IRON WORKS CO., Joplin, Mo.
- SPROUT WALDRON & CO., INC., Muncy, Pa.
- TRANSALL, INC., 109 N. 11th St., Birmingham 4, Ala.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- T. B. WOODS SONS CO., 5th Ave., Chambersburg, Pa.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- E. F. MARSH ENGR. CO., 4324 W. Clayton Ave., St. Louis 10, Mo.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- ROGERS IRON WORKS CO., Joplin, Mo.
- SPROUT WALDRON & CO., INC., Muncy, Pa.
- TRANSALL, INC., 109 N. 11th St., Birmingham 4, Ala.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio
- T. B. WOODS SONS CO., 5th Ave., Chambersburg, Pa.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

PULLEYS, Magnetic (see Magnetic Separators)

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

PULP DENSITY CONTROLLERS

- THE MINE & SMELTER SUPPLY CO., 17th & Blake, Denver 17, Colo.

PULVERIZERS FUEL SYSTEMS (see Coal Pulverizing Equipment, Direct Firing)

PULVERIZERS (see Mills)

PUMPS, Air Lift

1. Cement
2. Slurry
3. Water

- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- CHICAGO PNEUMATIC TOOL CO., 6 East 44th St., New York 17, N.Y.
- FULLER CO., 128 Bridge St., Catasauqua, Pa.
- THE GALIGHER CO., 545 W. 8th South St., Salt Lake City 4, Utah
- GARDNER-DENVER CO., Quincy, Ill.
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- F. L. SMITH & CO., 11 West 42nd St., New York 36, N.Y.
- WORTHINGTON CORP., So. 2nd St., Plainfield, N. J.

PUMPS, Asphalt

- AMERICAN BRAKE SHOE COMPANY, 230 Park Avenue, New York 17, New York
- HETHERINGTON & BERNER, INC., 701 Kentucky Ave., Indianapolis 7, Ind.
- LINCOLN ENGINEERING CO., 5701 Natural Bridge Ave., St. Louis 20, Mo.

PUMPS, Cement

- AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.
- FULLER CO., 128 Bridge St., Catasauqua, Pa.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- LINCOLN ENGINEERING CO., 5701 Natural Bridge Ave., St. Louis 20, Mo.
- MORRIS MACHINE WORKS, E. Genesee St., Baldwinsville, N.Y.
- F. L. SMITH & CO., 11 West 42nd St., New York 36, N.Y.
- RICHARD P. WALSH CO., 30 Church St., New York, New York
- A. R. WILFLEY & SONS, INC., 635 18th St. (Denham Bldg.), Denver, Colo.

PUMPS, Concrete

- CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
- LINCOLN ENGINEERING CO., 5701 Natural Bridge Ave., St. Louis 20, Mo.
- RICHARD P. WALSH CO., 30 Church St., New York, New York

PUMPS, Dredge

- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.

- AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.
- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- HETHERINGTON & BERNER, INC., 701 Kentucky Ave., Indianapolis 7, Ind.
- MECKUM ENGINEERING, INC., Dayton Road, Ottawa, Ill.
- MORRIS MACHINE WORKS, E. Genesee St., Baldwinsville, N.Y.
- NAGLE PUMPS, INC., 1269 Center Ave., Chicago Heights, Ill.
- PEKOR IRON WORKS, Ft. of E. 9th Ave., Columbus, Ga.
- PETTIBONE MULLIKEN CORP., 4700 W. Division St., Chicago 51, Ill.
- THOMAS FOUNDRIES, INC., 3800 10th Ave., P.O. Box 1111, Birmingham 1, Ala.
- RICHARD P. WALSH CO., 30 Church St., New York, New York
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

PUMPS, Sand

- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.
- AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.
- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- DENVER EQUIPMENT CO., 1400 17th Street, P.O. Box 5268, Denver 17, Colo.
- THE GALIGHER CO., 545 W. 8th South St., Salt Lake City 4, Utah
- HETHERINGTON & BERNER, INC., 701 Kentucky Ave., Indianapolis 7, Ind.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- MORRIS MACHINE WORKS, E. Genesee St., Baldwinsville, N.Y.
- NAGLE PUMPS, INC., 1269 Center Ave., Chicago Heights, Ill.
- PEKOR IRON WORKS, Ft. of E. 9th Ave., Columbus, Ga.
- PETTIBONE MULLIKEN CORP., 4700 W. Division St., Chicago 51, Ill.
- SMITH ENGINEERING WORKS, 532 E. Capitol Dr., Milwaukee 12, Wis.
- THOMAS FOUNDRIES, INC., 3800 10th Ave., P.O. Box 1111, Birmingham 1, Ala.
- RICHARD P. WALSH CO., 30 Church St., New York, New York
- WESTERN MACHINERY CO., 760 Folsom St., San Francisco 7, Calif.
- A. R. WILFLEY & SONS, INC., 635 18th St. (Denham Bldg.), Denver, Colo.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

PUMPS, Slurry

- ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin
- AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.
- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- DENVER EQUIPMENT CO., 1400 17th Street, P.O. Box 5268, Denver 17, Colo.
- THE DORR CO. ENGRS., Barry Place, Stamford, Conn.
- THE GALIGHER CO., 545 W. 8th South St., Salt Lake City 4, Utah
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- KOEHRING COMPANY, 3026 W. Concordia Ave., Milwaukee 16, Wis.
- McNALLY PITTSBURG MFG. CORP., W. Third St., Pittsburg, Kan.
- MORRIS MACHINE WORKS, E. Genesee St., Baldwinsville, N.Y.

- NAGLE PUMPS, INC., 1269 Center Ave., Chicago Heights, Ill.
- OLIVER UNITED FILTERS, INC., 33 W. 42nd St., New York 36, N.Y.
- OLIVER UNITED FILTERS, INC., 2900 Glascock St., Oakland 1, Calif.
- PETTIBONE MULLIKEN CORP., 4700 W. Division St., Chicago 51, Ill.
- QUINN-ROGERS MFG. CO., 345 Burkhardt Court, Forest Park, Ill.
- F. L. SMITH & CO., 11 West 42nd St., New York 36, N.Y.
- WESTERN MACHINERY CO., 760 Folsom St., San Francisco 7, Calif.
- A. R. WILFLEY & SONS, INC., 635 18th St. (Denham Bldg.), Denver, Colo.

PUMPS

1. Centrifugal
2. Deep Well
3. Diaphragm
4. Rubber-Lined
5. Vacuum
6. Hydraulic

- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.
- AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.
- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
- CHICAGO PNEUMATIC TOOL CO., 6 East 44th St., New York 17, N.Y.
- THE COMMERCIAL SHEARING & STAMPING CO., 1775 Logan Ave., P.O. Box 719, Youngstown 1, Ohio
- DENVER EQUIPMENT CO., 1400 17th Street, P.O. Box 5268, Denver 17, Colo.
- THE DORR CO. ENGRS., Barry Place, Stamford, Conn.
- ELECTRIC STEEL FOUNDRY CO., 2141 N.W. 25th Ave., Portland 10, Ore.
- FOOD MACHINERY & CHEMICAL CORP., PEERLESS PUMP DIV., 30 W. Ave. 26, Los Angeles 31, Calif.
- FULLER CO., 128 Bridge St., Catasauqua, Pa.
- THE GALIGHER CO., 545 W. 8th South St., Salt Lake City 4, Utah
- GARDNER-DENVER CO., Quincy, Ill.
- GAR WOOD IND. INC., Wayne Division, Wayne, Mich.
- GORMAN-RUPP CO., 305 Bowman St., Mansfield, Ohio
- INGERSOLL-RAND CO., 11 Broadway, New York 4, N.Y.
- THE JAEGER MACHINE CO., 530 W. Spring St., Columbus 16, Ohio
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- LINCOLN ENGINEERING CO., 5701 Natural Bridge Ave., St. Louis 20, Mo.
- McNALLY PITTSBURG MFG. CORP., W. Third St., Pittsburg, Kan.

MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.

- MORRIS MACHINE WORKS, E. Genesee St., Baldwinsville, N.Y.
- NATIONAL LIFT CO., 800 Lowell St., Ypsilanti, Mich.
- OLIVER UNITED FILTERS, INC., 2900 Glascock St., Oakland 1, Calif.
- OLIVER UNITED FILTERS, INC., 33 W. 42nd St., New York 36, N.Y.
- PEKOR IRON WORKS, Ft. of E. 9th Ave., Columbus, Ga.
- PETTIBONE MULLIKEN CORP., 4700 W. Division St., Chicago 51, Ill.
- RODGERS HYDRAULIC INC., 7401 Walker St., Minneapolis 16, Minn.
- WESTERN MACHINERY CO., 760 Folsom St., San Francisco 7, Calif.
- A. R. WILFLEY & SONS, INC., 635 18th St. (Denham Bldg.), Denver, Colo.
- WORTHINGTON CORP., So. 2nd St., Plainfield, N. J.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

PYROMETERS

- BAILEY METER CO., 1050 Ivanhoe Road, Cleveland 10, Ohio
- CAMBRIDGE INSTRUMENT CO., INC., Grand Central Terminal, New York 17, N.Y.
- THE FOXBORO CO., 38 Neponset Ave., Foxboro, Mass.
- GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.
- F. L. SMITH & CO., 11 W. 42nd St., New York 36, N.Y.

R

RACKS, Curing, Concrete Masonry

- ANCHOR CONCRETE MACHINERY CO., 1191 Fairview Ave., Columbus 12, Ohio
- THE CHASE FOUNDRY & MFG. CO., 2300 Parsons Avenue, Columbus 7, Ohio
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- FLEMING MFG. CO., Dept. C, Fleming Ave., Cuba, Mo.
- GENERAL ENGINES CO., INC., 307 Hunter St., Gloucester City, N. J.
- THE KIRK & BLUM MFG. CO., 3120 Forrer St., Cincinnati 9, Ohio
- MOORE DRY KILN CO., 1220 W. State St., Jacksonville 1, Fla.
- MULTIPLEX MACHINERY CO., Div. of Multipack, Inc., Fremont St., Elmore, Ohio
- THE GENE OLSEN CORP., 401 Grace St., Adrian, Mich.
- TRUAX MACHINE & TOOL CO., 16 Michigan St., Seattle 8, Wash.
- WITTEMAN MACHINERY CO., Farmingdale, N. J.

RAILS, Relay

- I. B. FOSTER CO., P.O. Box 1647, Pittsburgh 30, Pa.
- R. C. STANHOPE, INC., 60 E. 42nd St., New York, N.Y.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

RAILWAY, Industrial Equipment

- **BALDWIN-LIMA-HAMILTON CORP.**, Eddystone Corp., Philadelphia 42, Pa.
- **THE BUDA COMPANY**, 154th & Commercial, Harvey, Illinois
- **L. B. FOSTER CO.**, P.O. Box 1647, Pittsburgh 30, Pa.
- **R. C. STANHOPE, INC.**, 60 E. 42nd St., New York, N.Y.

READY-MIXED CONCRETE PLANTS (see Batching Plants)

READY MIXED TRUCKS (see Bodies, Ready Mixed Concrete)

RECORDERS, Concrete Batching

- **THE FOXBORO CO.**, 38 Neponset Ave., Foxboro, Mass.
- **C. S. JOHNSON CO.**, P. O. Box 71, Champaign, Ill.
- **SCIENTIFIC CONCRETE SERVICE CORP.**, 724 Salem Ave., Elizabeth 3, N. J.

RECORDERS

1. Draft
 2. Pressure
 3. Temperature
- **BAILEY METER CO.**, 1050 Ivanhoe Road, Cleveland 10, Ohio 1-2-3
 - **THE FOXBORO CO.**, 38 Neponset Ave., Foxboro, Mass. 2-3
 - **THE HAYS CORP.**, 742 East 8th St., Michigan City 21, Ind. 1-2-3

RECTIFIERS, Electric

- **ALLIS-CHALMERS MFG. CO.**, 975 South 70th Street, Milwaukee 1, Wisconsin
- **GENERAL ELECTRIC CO.**, 1 River Road, Schenectady 5, N.Y.
- **SYNTRON COMPANY**, 450 Lexington Ave., Homer City, Pa.

REFRACTORIES, Block, Brick, Insulation

- **THE BARCOX & WILCOX CO.**, 161 W. 42nd St., New York 17, N.Y.
- **THE DODSON MFG. CO., INC.**, 1463 Barwise Ave., Wichita 2, Kan.
- **ELECTRIC STEEL FOUNDRY CO.**, 2141 N.W. 25th Ave., Portland 10, Ore.
- **GENERAL REFRACTORIES CO.**, 1520 Locust St., Philadelphia 2, Pa.
- **HARRISON-WALKER REFRACTORIES CO.**, 1800 Farmers Bank Bldg., Pittsburgh 22, Pa.
- **JOHNS-MANVILLE**, 22 E. 40th St., New York 16, N.Y.
- **KAISER ALUMINUM & CHEMICAL SALES, INC.**, 1924 Broadway, Oakland, Calif.
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, New York
- **PLIBRICO CO.**, 1800 N. Kingsbury St., Chicago 14, Illinois

REGULATORS, Feed Water

- **THE HAYS CORP.**, 742 East 8th St., Michigan City 21, Ind.

REGULATORS, Draft, Pressure, Temperature (see Controls)

REGULATORS, Voltage

- **ALLIS-CHALMERS MFG. CO.**, 975 So. 70th St., Milwaukee 1, Wisc.
- **ELECTRIC MACHINERY MFG. CO.**, 800 Central Ave., Minneapolis 13, Minn.
- **GENERAL ELECTRIC CO.**, 1 River Road, Schenectady 5, N.Y.

RESPIRATORS

- **GENERAL SCIENTIFIC EQUIPMENT CO.**, 2735 W. Huntingdon St., Philadelphia 32, Pa.
- **MINE SAFETY APPLIANCES CO.**, 201 N. Braddock Ave., Pittsburgh 8, Pa.
- **WILLSON PRODUCTS, INC.**, Reading, Pa.

REVOLUTION COUNTERS (see Tachometers)

REVOLVING CRANES (see Derricks, Stiffleg or Guy)

RHEOSTATS

- **ATLAS POWDER COMPANY**, Wilmington 99, Delaware
- **GENERAL ELECTRIC CO.**, 1 River Road, Schenectady 5, N.Y.

ROCK SPLITTERS, for Stone-Faced Masonry

- **ANCHOR CONCRETE MACHINERY CO.**, 1191 Fairview Avenue, Columbus 12, Ohio
- **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington
- **FLEMING MFG. CO.**, Dept. C, Fleming Ave., Cuba, Mo.
- **INGERSOLL-RAND CO.**, 11 Broadway, New York 4, N.Y.
- **TRUAX MACHINE & TOOL CO.**, 16 Michigan St., Seattle 8, Wash.

ROCK WOOL CUPOLAS AND EQUIPMENT

- **HARRISON-WALKER REFRACTORIES, CO.**, 1800 Farmers Bank Bldg., Pittsburgh 22, Pa.
- **WHITING CORP.**, Harvey, Ill.

RODS, for Grinding Mills

- **ALLIS-CHALMERS MFG. CO.**, 975 So. 70th St., Milwaukee 1, Wisc.
- **THE COLORADO FUEL AND IRON CORP.**, Continental Oil Building, Denver 2, Colorado
- **THE COLORADO FUEL AND IRON CORP.**, Wickwire Spencer Steel Division, 575 Madison Avenue, New York 22, New York
- **DENVER EQUIPMENT CO.**, 1400 17th St., P.O. Box 5268, Denver 17, Colo.
- **HARDINGE CO., INC.**, 240 Arch St., York, Pa.
- **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, New York

RODS, Welding, Hard-facing (see Welding Rods, Hard-facing)

RODS, Welding (see Welding Rods and Electrodes)

ROLLER BEARINGS (see Bearings)

ROOFING AND SIDING, Industrial

- **CHASE BAG CO.**, (Gen. Sales Office), 309 W. Jackson Blvd., Chicago 6, Ill.

THE CELOTEX CORP., 120 S. La Salle St., Chicago 3, Ill.

JOHNS-MANVILLE, 22 East 40th St., New York 16, N.Y.

- **UNITED STATES STEEL CORP.**, 525 William Penn Place, Pittsburgh 30, Pa.
- **COLUMBIA-GENEVA STEEL DIV., UNITED STATES STEEL CORP.**, 1403 Russ Bldg., San Francisco 6, Calif.

ROPE, Wire (see Wire Rope)

RUBBER LININGS (see Chute Linings, Rubber)

5

SAFETY EQUIPMENT, Goggles, Shoes, etc.

- **A & A MFG. CO.**, 2017 W. Clybourn St., Milwaukee 3, Wisc.
- **E. D. BULLARD CO.**, 275 Eighth St., San Francisco 3, Calif.
- **CALUMET STEEL CASTINGS CORP.**, 1636 Summer St., Hammond, Ind.
- **EDMONT MFG. CO.**, Coshocton, Ohio
- **GENERAL SCIENTIFIC EQUIPMENT CO.**, 2735 W. Huntingdon St., Philadelphia 32, Pa.
- **GOODALL RUBBER CO.**, 403 Whitehead Road, Trenton 4, N. J.
- **B. F. GOODRICH CO.**, Akron 11, Ohio
- **F. R. HANNON & SONS**, 1605 Waynesburg Road S.E., Canton 7, Ohio
- **JACKSON PRODUCTS, INC.**, 31739 Mound Road, Warren, Mich.
- **JOHNS-MANVILLE**, 22 East 40th St., New York 16, N.Y.
- **MINE SAFETY APPLIANCES CO.**, 201 N. Braddock Ave., Pittsburgh 8, Pa.
- **WILLSON PRODUCTS, INC.**, Reading, Pa.

SAMPLING EQUIPMENT

- **DENVER EQUIPMENT CO.**, 1400 17th St., P.O. Box 5268, Denver 17, Colo.
- **THE GALIGHER CO.**, 545 W. 8th South St., Salt Lake City 4, Utah
- **STURTEVANT MILL CO.**, 102 Clayton St., Dorchester, Boston 22, Mass.

SAND BLAST MACHINES

- **PANGBORN CORP.**, Hagerstown, Md.

SAND DRAGS (see Sand Recovery Machinery)

SAND-LIME BRICK MACHINERY (see Brick Machinery)

SAND RECOVERY MACHINERY, Cones, Classifiers, Dewaterers, Drags, etc.

- **ALLIS-CHALMERS MFG. CO.**, 975 South 70th Street, Milwaukee 1, Wisconsin
- **AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO.**, 309 E. 14th St., Chicago Heights, Ill.
- **BODINSON MFG. CO.**, 2401 Bayshore Blvd., San Francisco 24, Calif.
- **BONDED SCALE AND MACHINE CO.**, 2193 S. Third St., Columbus 7, Ohio
- **THE DEISTER CONCENTRATOR CO.**, 935 Glasgow Ave., Fort Wayne 1, Ind.

• **DEISTER MACHINE CO.**, 1933 E. Wayne St., Fort Wayne 4, Ind.

DENVER EQUIPMENT CO., 1400 17th Street, P.O. Box 5268, Denver 17, Colo.

• **DIAMOND IRON WORKS, INC.**, 1728 North 2nd St., Minneapolis 11, Minn.

• **THE DORR CO. ENGRS.**, Barry Place, Stamford, Conn.

• **EAGLE IRON WORKS**, 127 Holcomb Ave., Des Moines 4, Iowa

EQUIPMENT ENGINEERS, INC., 41 Sutter St., San Francisco 4, Calif.

• **FULLER CO.**, 128 Bridge St., Catsauqua, Pa.

• **GENERAL AMERICAN TRANSPORTATION CORP.**, 135 S. La Salle St., Chicago 90, Ill.

• **HARDINGE CO., INC.**, 240 Arch St., York, Pa.

• **HEWITT-ROBINS, INC.**, 666 Glenbrook Road, Stamford, Conn.

• **IOWA MFG. CO.**, 916-16th St. N.E., Cedar Rapids, Iowa

• **JACKSON & CHURCH CO.**, 321 N. Hamilton St., Saginaw, Mich.

• **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, New York

• **LINK-BELT COMPANY**, 307 N. Michigan Ave., Chicago 1, Ill.

• **LIPPMANN ENGINEERING WORKS**, 4603 W. Mitchell St., Milwaukee 14, Wis.

• **MECKUM ENGINEERING, INC.**, Dayton Rd., Ottawa, Ill.

• **McLANAHAN & STONE CORP.**, Wall & Jackson Sts., Hollidaysburg, Pa.

• **THE MINE & SMELTER SUPPLY CO.**, 17th & Blake, Denver 17, Colo.

• **OLIVER UNITED FILTERS, INC.**, 2900 Glascock St., Oakland 1, Calif.

• **PIONEER ENGINEERING WORKS, INC.**, 1515 Central Ave. N.E., Minneapolis 13, Minn.

• **ROGERS IRON WORKS CO.**, Joplin, Mo.

• **SAUERMAN BROS., INC.**, 530 S. Clinton St., Chicago 7, Ill.

• **SMITH ENGINEERING WORKS**, 532 East Capital Dr., Milwaukee 12, Wis.

• **SEPARATOR DIV., SOUTHWESTERN ENGINEERING CO.**, 4800 S. Santa Fe Ave., Los Angeles 58, Calif.

• **STRAUB MFG. CO., INC.**, 507 Chestnut St., Oakland 20, Calif.

• **STURTEVANT MILL COMPANY**, 102 Clayton St., Dorchester, Boston 22, Mass.

• **UNIVERSAL ENGINEERING CORP.**, 625 C Ave. N.W., Cedar Rapids, Iowa

• **UNIVERSAL ROAD MACHINERY, CO.**, 27 Emerick St., Kingston, N.Y.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **WESTERN MACHINERY CO.**, 760 Folsom St., San Francisco 7, Calif.

• **WEBSTER MFG. CO.**, West Hall St., Tiffin, Ohio

SCALES, Batching (see Batchers)

SCALES, Conveyor (see Feeders)

SCALES, Hopper

- **BEAUMONT BIRCH CO.**, 1505 Race St., Philadelphia 2, Pa.
- **BUTLER BIN CO.**, 945 Blackstone Ave., Waukesha, Wisc.
- **CONCRETE TRANSPORT MIXER CO.**, 4987 Flyer Ave., St. Louis 9, Mo.
- **FANNING SCHUETT ENGINEERING CO.**, 4325 N. Third Street, Philadelphia 40, Pa.
- **THE HOWE SCALE CO.**, Rutland, Vt.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- RICHARDSON SCALE CO., 668-698 Van Houten Ave., Clifton, N. J.
- SCIENTIFIC CONCRETE SERVICE CORP., 724 Salem Ave., Elizabeth 3, N. J.
- STREETER-AMET CO., 4101 N. Ravenswood Ave., Chicago 13, Ill.

SCALES, Laboratory

- THE HOWE SCALE CO., Rutland, Vt.
- HUMBOLDT MFG. CO., 2014 N. Whipple St., Chicago 47, Ill.

SCALES, Lorry (see Weigh Lorries)

SCALES, Proportioning (see Batchers)

SCALES, Truck, Railway

- BONDED SCALE AND MACHINE CO., 2193 S. Third St., Columbus 7, Ohio
- FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.
- THE HOWE SCALE CO., Rutland, Vt.
- STREETER-AMET CO., 4101 N. Ravenswood Ave., Chicago 13, Ill.

SCRAPERS, Power Drag (see Cable Excavators)

SCRAPERS, Tractor

- ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin
- ALLIS-CHALMERS MFG. CO., Tractor Division, Milwaukee 1, Wisc.
- CATERPILLAR TRACTOR CO., Peoria 8, Ill.
- THE EUCLID ROAD MACHINERY CO., 1351 Chardon Road, Cleveland 17, Ohio
- GLEDHILL ROAD MACHINERY CO., Galion, Ohio
- LE TOURNEAU-WESTINGHOUSE CO., 2301 N. Adams St., Peoria 3, Ill.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WOOLDRIDGE MFG. CO., Hendy Ave., Sunnyvale, Calif.

SCREEN CLOTH, Woven-Wire (see Wire Cloth)

SCREEN HEATERS

- THE DEISTER CONCENTRATOR CO., 935 Glasgow Ave., Fort Wayne 1, Ind.
- DEISTER MACHINE CO., 1933 E. Wayne St., Fort Wayne 4, Ind.
- F. R. HANNON & SONS, 1605 Waynesburg S.E., Canton 7, Ohio
- THE W. S. TYLER CO., 3615 Superior Ave., Cleveland 14, Ohio
- UNIVERSAL VIBRATING SCREEN CO., Deane Blvd., & St. Paul RR., Racine, Wis.

SCREEN PLATE, Perforated

- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- CHICAGO PERFORATING CO., 2445 W. 24th Pl., Chicago 8, Ill.
- THE COLORADO FUEL AND IRON CORP., Continental Oil Building, Denver 2, Colorado

- THE COLORADO FUEL AND IRON CORP., Wickwire Spencer Steel Division, 575 Madison Avenue, New York 22, New York
- CROSS ENGINEERING CO., Carbondale, Pa.
- HENDRICK MFG. CO., 39 Dundaff St., Carbondale, Pa.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- JOHNSTON & CHAPMAN CO., 2925 Carroll Ave., Chicago 12, Ill.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- PIONEER ENGINEERING WORKS, INC., 1515 Central Ave. N.E., Minneapolis 13, Minn.
- JOSEPH T. RYERSON & SON, INC., P.O. Box 8000-A, Chicago 80, Ill.
- SMITH ENGINEERING WORKS, 532 E. Capitol Dr., Milwaukee 12, Wis.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

SCREENING PLANTS, Portable (see Crushing and Screening Plants Portable)

SCREENS

1. Gravity
2. Grizzly
3. Laboratory
4. Revolving
5. Scrubber
6. Vibrating & Shaker
7. Gyration
8. Vertical

- AJAX FLEXIBLE COUPLING CO., INC., Westfield, New York
- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.
- AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.
- ANCHOR CONCRETE MACHINERY CO., 1191 Fairview Ave., Columbus 12, Ohio
- BALDWIN-LIMA-HAMILTON CORP., Construction Equipment Div., South Main St., Lima, Ohio
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- BONDED SCALE AND MACHINE CO., 2193 S. Third St., Columbus 7, Ohio
- THE BRANFORD COMPANY, 145 Chestnut Street, New Haven, Conn.
- CARRIER CONVEYOR CORP., 2144 Frankfort Avenue, Louisville 6, Ky.
- THE COLORADO FUEL AND IRON CORP., Continental Oil Building, Denver 2, Colorado
- THE COLORADO FUEL AND IRON CORP., Wickwire Spencer Steel Division, 575 Madison Avenue, New York 22, New York
- CROSS ENGINEERING CO., Carbondale, Pa.
- THE DEISTER CONCENTRATOR CO., 935 Glasgow Ave., Fort Wayne 1, Ind.
- DEISTER MACHINE CO., 1933 E. Wayne St., Fort Wayne 4, Ind.
- DENVER EQUIPMENT CO., 1400 17th Street, P.O. Box 5268, Denver 17, Colo.
- DIAMOND IRON WORKS, INC., 1728 North 2nd St., Minneapolis 11, Minn.
- EAGLE CRUSHER CO., INC., 900 Harding Way East, Galion, Ohio
- GRUENDLER CRUSHER & PULV. CO., 2915 N. Market St., St. Louis 6, Mo.
- HENDRICK MFG. CO., 39 Dundaff St., Carbondale, Pa.
- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- HUMBOLDT MFG. CO., 2014 N. Whipple St., Chicago 47, Ill.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- KOLMAN MFG. CO., West 12th St. Rd., Sioux Falls, S. D.
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wis.
- McLANAHAN & STONE CORP., Wall & Jackson Sts., Hollidaysburg, Pa.
- NORDBERG MFG. CO., 3073 S. Chase Ave., Milwaukee 1, Wisc.
- PIONEER ENGINEERING WORKS, INC., 1515 Central Ave. N.E., Minneapolis 13, Minn.
- ROGERS IRON WORKS CO., Joplin, Mo.
- ROSS SCREEN & FEEDER CO., 19 Rector St., New York 6, N.Y.
- SCREEN EQUIPMENT CO., INC., 1754 Walden Ave., Buffalo 25, N.Y.
- SIMPLICITY ENGINEERING CO., 213 S. Oak St., Durand, Mich.
- SMITH ENGINEERING WORKS, 532 E. Capitol Dr., Milwaukee 12, Wis.
- THE STEARNS ROGER MFG. CO., 1720 California St., Denver 2, Colo.
- STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora, Ill.
- SEPARATOR DIV., SOUTHWESTERN ENGINEERING CO., 4800 S. Santa Fe Ave., Los Angeles 58, Calif.
- STRAU MFG. CO., INC., 507 Chestnut St., Oakland 20, Calif.
- STURTEVANT MILL COMPANY, 102 Clayton St., Dorchester, Boston 22, Mass.
- SYNTRON COMPANY, 450 Lexington Ave., Homer City, Pa.
- THE W. S. TYLER CO., 3615 Superior Ave., Cleveland 14, Ohio
- UNIVERSAL ENGINEERING CORP., 625 C Ave. N.W., Cedar Rapids, Iowa
- UNIVERSAL ROAD MACHINERY CO., 27 Emerick St., Kingston, N.Y.
- UNIVERSAL VIBRATING SCREEN CO., Deane Blvd., & St. Paul RR., Racine, Wis.

- VIBRO-PLUS PRODUCTS, INC., 54-11 Queens Blvd., Woodside 77, N.Y.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WILLIAMS PATENT CRUSHER & PULVERIZER CO., INC., 813 Montgomery St., St. Louis 6, Mo.
- YUBA MFG. CO., 351 California St., San Francisco 4, Calif.

SCREW CONVEYORS (see Conveyors, Screw)

SCRUBBERS, Crushed Stone, Gravel

- ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin
- BALDWIN-LIMA-HAMILTON CORP., Construction Equipment Div., South Main St., Lima, Ohio
- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- DIAMOND IRON WORKS, INC., 1728 North 2nd St., Minneapolis 11, Minn.
- EAGLE IRON WORKS, 127 Holcomb Ave., Des Moines 4, Iowa
- HARDINGE CO., INC., 240 Arch St., York, Pa.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wis.
- MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.
- McLANAHAN & STONE CORP., Wall & Jackson Sts., Hollidaysburg, Pa.
- McNALLY PITTSBURG MFG. CORP., W. Third St., Pittsburg, Kan.
- PIONEER ENGINEERING WORKS, INC., 1515 Central Ave. N.E., Minneapolis 13, Minn.
- ROGERS IRON WORKS CO., Joplin, Mo.
- F. L. SMITH & CO., 11 West 42nd St., New York 36, N.Y.
- SMITH ENGINEERING WORKS, 532 East Capitol Dr., Milwaukee 12, Wis.
- TRAYLOR ENGINEERING & MFG. CO., Allentown, Pa.
- UNIVERSAL ENGINEERING CORP., 625 C Ave. N.W., Cedar Rapids, Iowa
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WESTERN MACHINERY CO., 760 Folsom St., San Francisco 7, Calif.

SEAL RINGS, Kiln

- VULCAN IRON WORKS, 730 So. Main St., Wilkes-Barre, Pa.

SEPARATORS, Air (see Air Separators)

SEPARATORS, Electrostatic (see Classifiers)

SEPARATORS, Magnetic (see Magnetic Separators)

SHEAVES

1. Wire Rope
 2. V. Belt
- ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

• **AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO.**, 389 E. 14th St., Chicago Heights, Ill.

1
• **AMERICAN HOIST & DERRICK CO.**, 63 S. Robert St., St. Paul 1, Minn.

1
• **THE AMERICAN PULLEY CO.**, 4200 Wissachickon Ave., Philadelphia 29, Pa.

2
• **BOSTON WOVEN HOSE & RUBBER COMPANY, P.O. Box 1071**, Boston 3, Massachusetts

2
• **THE COLORADO FUEL AND IRON CORP.**, Wickwire Spencer Steel Division, 575 Madison Avenue, New York 22, New York

1
• **CONTINENTAL GIN CO.**, 4500 5th Ave. South, Birmingham, Alabama

2
• **DODGE MFG. CORP.**, 500 S. Union St., Mishawaka, Ind.

2
• **DURKEE-ATWOOD CO.**, 215 N.E. 7th St., Minneapolis 13, Minn.

1
• **IOWA MFG. CO.**, 916-16th St. N.E., Cedar Rapids, Iowa

1-2
• **JOY MFG. CO.**, Henry W. Oliver Bldg., Pittsburgh 22, Pa.

1
• **MADESCO TACKLE BLOCK CO.**, P.O. Box 148, Easton, Pa.

1
• **McLANAHAN & STONE CORP.**, Wall & Jackson Sts., Hollidaysburg, Pa.

1-2
• **NORDBERG MFG. CO.**, 3073 S. Chase Ave., Milwaukee 1, Wisc.

1
• **SAUERMAN BROS. INC.**, 530 S. Clinton St., Chicago 7, Ill.

1
• **STROH PROCESS STEEL CO.**, 1428 High St. N.E., Pittsburgh 12, Pa.

1
• **TAYLOR-WHARTON IRON & STEEL CO.**, High Bridge, N.J.

1
• **VULCAN IRON WORKS**, 730 So. Main St., Wilkes-Barre, Pa.

1
• **WEBSTER MFG. CO.**, West Hall St., Tiffin, Ohio

SHIPPING SACKS, Paper, Heavy Duty

• **KRAFT BAG CORP.**, 630 5th Ave., New York 20, N.Y.

• **GILMAN PAPER CO.**, 630 5th Ave., New York 20, N.Y.

SHOVELS, Crawler Mounted

1. Diesel
2. Electric
3. Gasoline
4. Electric Generator

• **AMERICAN HOIST & DERRICK CO.**, 63 S. Robert St., St. Paul 1, Minn.

1-2-3-4
• **BALDWIN-LIMA-HAMILTON CORP.**, Construction Equipment Div., South Main St., Lima, Ohio

1-2-3
• **BAY CITY SHOVELS, INC.**, Bay City, Michigan

1-2-3-4
• **BUCRUS-ERIE CO.**, South Milwaukee, Wisc.

1
• **CATERPILLAR TRACTOR CO.**, Peoria 8, Illinois

1-3
• **CLARK EQUIPMENT CO.**, Construction Machinery Div., Springfield Place, Battle Creek 60, Mich.

3
• **GAR WOOD INDUSTRIES, INC.**, Findlay, Ohio

• **HANSON CLUTCH & MACHINE CO.**, Tiffin, Ohio

• **THE FRANK G. HOUGH CO.**, 939 Sunnyside Ave., Libertyville, Ill.

1-3
• **HYSTER COMPANY**, 2918 N.E. Clackamas St., Portland 8, Ore.

1
• **INSLEY MFG. CO.**, 801 N. Olney St., Indianapolis 6, Ind.

1-2-3-4
• **KOEHRING COMPANY**, 3026 W. Concordia Ave., Milwaukee 16, Wisc.

1-2-3-4
• **LINK-BELT SPEEDER CORP.**, 1201 Sixth St., S.W., Cedar Rapids, Iowa

1-2-3-4
• **LITTLE GIANT CRANE & SHOVEL, INC.**, East 16th & Howard Drive, Des Moines 13, Iowa

1-2-3
• **MANITOWOC ENGINEERING CORP.**, 16th & River Sts., Manitowoc, Wisc.

1-2-3
• **MARION POWER SHOVEL CO.**, 617 W. Center St., Marion, Ohio

1-2-3-4
• **NORTHWEST ENGINEERING CO.**, 135 S. LaSalle St., Chicago 3, Ill.

1-2-3-4
• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

1-2-3-4
• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

1-2-3-4
• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

1-2-3-4
• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

SHOVELS, Tractor

• **ALLIS-CHALMERS MFG. CO.**, 975 South 70th Street, Milwaukee 1, Wisconsin

• **ALLIS-CHALMERS MFG. CO.**, Tractor Division, Milwaukee 1, Wisc.

• **THE BAKER-LULL CORPORATION**, 314 West 90th Street, Minneapolis 20, Minnesota

• **J. I. CASE COMPANY**, 700 State Street, Racine, Wisc.

• **DROTT MFG. CORP.**, 3841 W. Wisconsin Ave., Milwaukee 8, Wisc.

• **GAR WOOD INDUSTRIES, INC.**, Findlay, Ohio

• **THE FRANK G. HOUGH CO.**, 939 Sunnyside Ave., Libertyville, Ill.

• **HYSTER CO.**, 2918 N.E. Clackamas St., Portland 8, Ore.

• **INTERNATIONAL HARVESTER CO.**, 180 N. Michigan Ave., Chicago 1, Ill.

• **THE JAEGER MACHINE CO.**, 550 W. Spring St., Columbus 16, Ohio

• **LESSMANN MFG. CO.**, E. 20 and Easton Blvd., Des Moines 4, Iowa

• **NORTHWEST ENGINEERING CO.**, 135 S. LaSalle St., Chicago 3, Ill.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **INTERNATIONAL HARVESTER CO.**, 180 N. Michigan Ave., Chicago 1, Ill.

• **THE JAEGER MACHINE CO.**, 550 W. Spring St., Columbus 16, Ohio

• **LESSMANN MFG. CO.**, E. 20 and Easton Blvd., Des Moines 4, Iowa

• **NORTHWEST ENGINEERING CO.**, 135 S. LaSalle St., Chicago 3, Ill.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **INTERNATIONAL HARVESTER CO.**, 180 N. Michigan Ave., Chicago 1, Ill.

• **THE JAEGER MACHINE CO.**, 550 W. Spring St., Columbus 16, Ohio

• **LESSMANN MFG. CO.**, E. 20 and Easton Blvd., Des Moines 4, Iowa

• **NORTHWEST ENGINEERING CO.**, 135 S. LaSalle St., Chicago 3, Ill.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **KOEHRING COMPANY**, 3026 W. Concordia Ave., Milwaukee 16, Wisc.

• **LINK-BELT SPEEDER CORP.**, 1201 Sixth St., S.W., Cedar Rapids, Iowa

• **LITTLE GIANT CRANE & SHOVEL, INC.**, East 16th & Howard Drive, Des Moines 13, Iowa

• **NORTHWEST ENGINEERING CO.**, 135 S. LaSalle St., Chicago 3, Ill.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **"QUICK-WAY" TRUCK SHOVEL CO.**, 4150 Josephine St., Denver, Colo.

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **MULTIPLEX MACHINERY CO.**, Div. of MULTIPACK, INC., Framont St., Elmore, Ohio

• **THE GENE OLSEN CORP.**, 401 Grace St., Adrian, Mich.

• **STEARNS MFG. CO., INC.**, 600 E. Beecher, Adrian, Mich.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

SKIP HOISTS

• **ANCHOR CONCRETE MACHINERY CO.**, 1191 Fairview Ave., Columbus 12, Ohio

• **J. W. APPLEY & SON, INC.**, 831 9th St. North, St. Petersburg 2, Fla.

• **BEAUMONT BIRCH CO.**, 1505 Race St., Philadelphia 2, Pa.

• **BROOKS EQUIPMENT & MFG. CO.**, 2018 Davenport Road S.E., Knoxville 8, Tenn.

• **COLUMBIA MACHINE WORKS**, 107 South Grand, Vancouver, Washington

• **THE FAIRFIELD ENGINEERING CO.**, 324 Barnhart St., Marion, Ohio

• **FLEMING MFG. CO.**, Dept. C, Fleming Ave., Cuba, Mo.

• **GRUENDLER CRUSHER & PULV. CO.**, 2915 N. Market St., St. Louis 6, Mo.

• **THE JEFFREY MFG. CO.**, 935 N. Fourth St., Columbus 16, Ohio

• **KENNEDY-VAN SAUN MFG. & ENG. CORP.**, 2 Park Ave., New York 16, New York

• **LINK-BELT COMPANY**, 307 N. Michigan Ave., Chicago 1, Ill.

• **NORDBERG MFG. CO.**, 3073 S. Chase Ave., Milwaukee 1, Wisc.

• **THE GENE OLSEN CORP.**, 401 Grace St., Adrian, Mich.

• **ROGERS IRON WORKS CO.**, Joplin, Mo.

• **STEPHENS-ADAMSON MFG. CO.**, Ridgeway Ave., Aurora, Ill.

• **VULCAN IRON WORKS**, 730 S. Main St., Wilkes-Barre, Pa.

• **WEBSTER MFG. CO.**, West Hall St., Tiffin, Ohio

• **WITTMANN MACHINERY CO.**, Farmingdale, N.J.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St., Waverly, Iowa

• **UNIT CRANE & SHOVEL CORP.**, 6411 W. Burnham St., Milwaukee 14, Wisc.

• **RICHARD P. WALSH CO.**, 30 Church St., New York, N.Y.

• **OSGOOD-GENERAL, P.O. Box 515**, (Osgood & Cheney Ave.), Marion, Ohio

• **SCHIELD BANTAM CO.**, Park St

DIRECTORY

● SINTERING MACHINERY CORP.,
Netcong, N. J.

SLURRY MIXERS

- THE DORR CO., ENGRS., Barry Place, Stamford, Conn.
- HARDINGE CO., INC., 240 Arch St., York, Pa.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- THE KOEHRING CO., 3026 W. Concordia Ave., Milwaukee 16, Wisc.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WESTERN MACHINERY CO., 760 Folsom St., San Francisco 7, Calif.

SLURRY PUMPS (see Pumps, Slurry)

SLURRY SEPARATORS

- THE DORR CO., ENGRS., Barry Place, Stamford, Conn.
- HARDINGE CO., INC., 240 Arch St., York, Pa.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- OLIVER UNITED FILTERS, INC., 2900 Glascock St., Oakland 1, Calif.
- F. L. SMITH & CO., 11 West 42nd St., New York 36, N.Y.
- SEPARATOR DIV., SOUTHWESTERN ENGINEERING CO., 4800 S. Santa Fe Ave., Los Angeles 58, Calif.

SLURRY THICKENERS

- DENVER EQUIPMENT CO., 1400 17th Street, P.O. Box 5268, Denver 17, Colo.
- THE DORR CO., ENGRS., Barry Place, Stamford, Conn.
- HARDINGE CO., INC., 240 Arch St., York, Pa.
- W. P. HEINEKEN, INC., 50 Broad St., New York 3, N.Y.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- NORDBERG MFG. CO., 3073 S. Chase Ave., Milwaukee 1, Wisc.
- OLIVER UNITED FILTERS, INC., 2900 Glascock St., Oakland 1, Calif.
- SINTERING MACHINERY CORP., Netcong, N. J.
- WESTERN MACHINERY CO., 760 Folsom St., San Francisco 7, Calif.

SOCKETS, Wire Rope (see Wire Rope Fittings)

SPEED REDUCERS (see Drives)

SPOUTS (see Chutes)

SPRAYS, Wash Water

- BETE FOG NOZZLE, INC., 85 Pierce St., Greenfield, Mass.
- THE DEISTER CONCENTRATOR CO., 935 Glasgow Ave., Fort Wayne 1, Ind.

SPROCKETS, Chain

- CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.
- DIAMOND CHAIN CO., INC., 402 Kentucky Ave., Indianapolis 17, Ind.
- DODGE MFG. CORP., 500 S. Union St., Mishawaka, Ind.
- IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio

● LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.

● McLANAHAN & STONE CORP., Wall & Jackson Sts., Hollidaysburg, Pa.

TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.

● TRUAX MACHINE & TOOL CO., 16 Michigan St., Seattle 8, Wash.

● WEBSTER MFG. CO., West Hall St., Tiffin, Ohio

STAIR TREADS & STEPS, Industrial

- BOSTON WOVEN HOSE & RUBBER COMPANY, P.O. Box 1071, Boston 3, Massachusetts
- JOSEPH T. RYERSON & SON, INC., P.O. Box 8000-A, Chicago 80, Ill.
- UNITED STATES RUBBER CO., 1230 Ave. of the Americas, New York 20, N.Y.

STARTERS, Motor

- ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin
- GARDNER-DENVER CO., Quincy, Ill.

STEAM-CURING EQUIPMENT, Concrete (see Kilns)

STEEL

1. Abrasion Resisting
2. Bar
3. Concrete Reinforcing
4. Heat-Resisting
5. Manganese
6. Plates & Shapes
7. Shafting
8. Special Alloy

● AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.

4-5-8
● AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.

1-4-5-6-8
● BETHLEHEM STEEL CO., Third St., Bethlehem, Pa.

1-2-3-4-5-6-7-8
● THE COLORADO FUEL AND IRON CORP., Continental Oil Building, Denver 2, Colorado

1-2-3-4-5-6-7-8
● THE COLORADO FUEL AND IRON CORP., Wickwire Spencer Steel Division, 575 Madison Avenue, New York 22, New York

1-3-4-6-8
● ELECTRIC STEEL FOUNDRY CO., 2141 N.W. 25th Ave., Portland 10, Ore.

1-4-5-8
● THE FAHRALLOY CO., 150th & Lexington Aves., Harvey, Ill.

4-8
● THE FROG, SWITCH & MFG. CO., Carlisle, Pa.

5
● JONES & LAUGHLIN STEEL CORP., 3 Gateway Center, Pittsburgh 30, Pa.

1-2-3-4-5-6-7-8
● JOSEPH T. RYERSON & SON, INC., P.O. Box 8000-A, Chicago 80, Ill.

1-2-3-4-5-6-7-8
● STULZ-SICKLES CO., 134 Lafayette St., Newark 5, N. J.

1-2-5-6-8
● TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.

1-5-8
● THE TIMKEN ROLLER BEARING CO., 1835 Dueber Ave. S.W., Canton 6, Ohio

8
● UNITED STATES STEEL CORP., 525 William Penn Place, Pittsburgh 30, Pa.

1-2-3-4-5-6-7-8
● UNITED STATES STEEL CORP., 208 S. LaSalle St., Chicago 90, Ill.

1-2-3-4-5-6-7-8

● COLUMBIA-GENEVA STEEL DIV., UNITED STATES STEEL CORP., 1403 Russ Bldg., San Francisco 6, Calif.

1-2-3-6-8

STOKERS, Coal, for Lime Kilns, etc.

● KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York

STORAGE SYSTEMS, Radial

● THE MARIETTA CONCRETE CORP., 1949 Register Ave., Marietta, Ohio

● THE NICHOLSON CO., INC., 10 Rockefeller Plaza, New York 20, N.Y.

STUCCO COLORS (see Cement and Masonry Colors)

SUPERHEATERS (see Boilers)

SWITCHBOARDS AND PANELS

● ALLIS-CHALMERS MFG. CO., 975 S. 70th St., Milwaukee 1, Wisc.

● ELECTRIC MACHINERY MFG. CO., 800 Central Avenue, Minneapolis 13, Minn.

● GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

● THE KIRK & BLUM MFG. CO., 3120 Forrer St., Cincinnati 9, Ohio

● THE READY-POWER CO., 11231 Freud Ave., Detroit 14, Mich.

SWITCHES, Control, Electric

● ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin

● GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

SWITCHES, Magnetic

● ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin

● GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

T

TABLES, Washing, Concentrating (see Concentrating Tables)

TACHOMETERS, Counters, etc.

● THE FOXBORO CO., 38 Neponset Ave., Foxboro, Mass.

● GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

● INSTRUMENT DIV., STEWART-WARNER CORP., 1826 Diversey Pkwy., Chicago 14, Ill.

● STREETER-AMET CO., 4101 N. Ravenswood Ave., Chicago 13, Ill.

TANKS, Gasoline

● GENERAL AMERICAN TRANSPORTATION CORP., 135 S. LaSalle St., Chicago 90, Ill.

● R. C. STANHOPE, INC., 60 E. 42nd St., New York, N.Y.

TANKS, Sand Settling (see Sand Recovery Machinery)

TANKS, Storage, Concrete

FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.

● THE MARIETTA CONCRETE CORP., 1949 Register Ave., Marietta, Ohio

● THE NICHOLSON CO., INC., 10 Rockefeller Plaza, New York 20, N.Y.

● RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

TANKS, Storage, Steel

BETHLEHEM STEEL CO., Third St., Bethlehem, Pa.

● BLAW-KNOX CO., Blawnox, Pittsburgh, Pa.

● BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.

● BURKHART ENGINEERING ASSOCIATES, 30 Huntington Avenue, Boston, Mass.

● DENVER EQUIPMENT CO., 1400 17th St., P.O. Box 5268, Denver 17, Colo.

● THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio

● FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.

● GENERAL AMERICAN TRANSPORTATION CORP., 135 S. LaSalle St., Chicago 90, Ill.

● C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.

● THE KIRK & BLUM MFG. CO., 3120 Forrer St., Cincinnati 9, Ohio

● LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wisc.

● LITTLEFORD BROS., INC., 453 E. Pearl St., Cincinnati 2, Ohio

● MECKUM ENGINEERING, INC., Dayton Rd., Ottawa, Ill.

● R. C. STANHOPE, INC., 60 E. 42nd St., New York, N.Y.

● RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

TESTING LABORATORIES (see Laboratories)

TESTING EQUIPMENT (see Laboratory Apparatus)

THAWING PITS (for Frozen R. R. Hopper Cars)

● JOHNSTON MFG. CO., 2825 E. Hennepin Ave., Minneapolis 13, Minn.

THERMOCOUPLES, Pyrometers (see Pyrometers)

THICKENERS (see Slurry Thickeners)

THIRD AXLES (see Motor Truck Drives and Differentials)

TIRES, Coolers, Dryers, Kiln

● SINTERING MACHINERY CORP., Netcong, N. J.

● F. L. SMITH & CO., 11 West 42nd St., New York 36, N.Y.

● STROM PROCESS STEEL CO., 1428 High St. N.E., Pittsburgh 12, Pa.

● TRAYLOR ENGINEERING & MFG. CO., Allentown, Pa.

● A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

TIRES AND TUBES, Rubber, Heavy Duty Industrial

- B. F. GOODRICH CO., Akron 11, Ohio
- THE GOODYEAR TIRE & RUBBER CO., INC., 1144 E. Market St., Akron 16, Ohio
- GULF OIL CORP., GULF REFINING CO., Gulf Bldg., Pittsburgh 30, Pa.
- STAR RUBBER CO., 345 Park Ave. East, Mansfield, Ohio
- UNITED STATES RUBBER CO., 1230 Ave. of the Americas, New York 20, N.Y.

TORCHES, Cutting and Welding (see Welding and Cutting Equipment, Oxyacetylene)

TORQUE CONVERTERS

- ALLISON DIV. OF GENERAL MOTORS CORP., 4700 W. 10th St., Indianapolis 6, Ind.
- TORCON CORP., 493 E. 5th St., Ashtabula, Ohio

TOWERS, Structural Steel

- THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio

TRACK & TRACK EQUIPMENT

- AMERICAN BRAKE SHOE CO., 230 Park Avenue, New York 17, New York
- ATHEY PRODUCTS CO., 5631 W. 65th St., Chicago 38, Ill.
- BETHLEHEM STEEL CO., Third St., Bethlehem, Pa.
- THE COLORADO FUEL AND IRON CORP., Continental Oil Building, Denver 2, Colorado
- THE COLORADO FUEL AND IRON CORP., Wickwire Spencer Steel Division, 575 Madison Avenue, New York 22, New York
- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- L. B. FOSTER CO., P.O. Box 1647, Pittsburgh 30, Pa.
- NORDBERG MFG. CO., 3073 S. Chase Ave., Milwaukee 1, Wisc.
- UNITED STATES STEEL CORP., 525 William Penn Place, Pittsburgh 30, Pa.

TRACTORS, Industrial Crawler

- ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin
- ALLIS-CHALMERS MFG. CO., Tractor Division, Milwaukee 1, Wisc.
- CATERPILLAR TRACTOR CO., Peoria 8, Ill.
- INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago 1, Ill.
- THE OLIVER CORP., 19300 Euclid Ave., Cleveland 17, Ohio
- THE OLIVER CORP., 400 W. Madison St., Chicago 6, Ill.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

TRACTORS, Industrial Wheel

- J. I. CASE COMPANY, 700 State Street, Racine, Wisc.

TRAILER BODIES (see Bodies)

TRAILER BODIES, Bulk Cement (see Bodies)

TRAILERS & SEMI-TRAILERS, Motor Truck Eqpt.

- COOK BROS. EQUIPMENT CO., 3334 San Fernando Road, Los Angeles 65, Calif.
- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- THE EUCLID ROAD MACHINERY CO., 1361 Chardon Road, Cleveland 17, Ohio
- THE FRUEHAUF TRAILER CO., 10940 Harper Ave., Detroit 32, Mich.
- THE GALION ALLSTEEL BODY CO., 605 S. Market St., Galion, Ohio
- LANDIS STEEL CO., 116 West A St., P.O. Box 248, Picher, Okla.
- SCHONROCK EQUIPMENT MFG. CO., Mathis Field, P.O. Box 1543, San Angelo, Texas

TRAILERS, Cable Dump

- COOK BROS. EQUIPMENT CO., 3334 San Fernando Road, Los Angeles 65, Calif.
- THE MARION METAL PROD. CO., Cheney Ave., Marion, Ohio
- SCHONROCK EQUIPMENT MFG. CO., Mathis Field, P.O. Box 1543, San Angelo, Texas
- WINCH-LIFT, INC., 505 First National Bank Bldg., Shreveport, La.

TRAMWAYS, Aerial (see Aerial Tramways)

TRANSFER PLANTS, Ready-Mixed Concrete

- BODINSON MFG. CO., 2401 Bayshore Blvd., San Francisco 24, Calif.
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.
- WORTHINGTON CORP., So. 2nd St., Plainfield, N. J.

TRANSFORMERS, Electric

- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.
- GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

TRANSIT CONCRETE MIXING PLANTS (see Central Mixing Plants)

TRANSMISSION MACHINERY (see Gears)

TRIPPERS, Belt (see Conveyor Belt Trippers)

TROLLEYS, I-Beam

- THE COLORADO FUEL AND IRON CORP., Continental Oil Building, Denver 2, Colorado
- JOSEPH T. RYERSON & SON, INC., P.O. Box 8000-A, Chicago 80, Ill.
- WHITING CORP., Harvey, Ill.
- THE YALE & TOWNE MFG. CO., Roosevelt Blvd. & Haldeman Ave., Philadelphia 15, Pa.

TRUCK BODIES (see Bodies)

TRUCKS, Dump (see Motor Trucks)

TRUCKS, Hand

- THE AMERICAN PULLEY CO., 4200 Wissahickon Ave., Philadelphia 29, Pa.
- CLARK EQUIPMENT COMPANY, Industrial Truck Division, Battle Creek 60, Michigan

- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- THE HOWE SCALE CO., Rutland, Vt.
- THE YALE & TOWNE MFG. CO., Roosevelt Blvd. & Haldeman Ave., Philadelphia 15, Pa.

TRUCKS, Lift (see Lift Trucks)

TRUCKS, Straddle

- CLARK EQUIPMENT CO., Construction Machinery Div., Springfield Place, Battle Creek 60, Mich.

TRUCKS AND TRACTORS, Wheeled Industrial

1. Electric
 2. Gas
- ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin
 - ALLIS-CHALMERS MFG. CO., Tractor Division, Milwaukee 1, Wisc.
 - THE BUDA COMPANY, 154th & Commercial, Harvey, Illinois
 - CLARK EQUIPMENT COMPANY, Industrial Truck Division, Battle Creek 60, Michigan
 - EASTON CAR & CONSTRUCTION CO., Easton, Pa.
 - GERLINGER CARRIER CO., Dallas, Ore.
 - THE FRANK G. HOUGH CO., 939 Sunnyside Ave., Libertyville, Ill.
 - TRUCK-MAN DIV., THE KNICKERBOCKER CO., 603 Liberty St., Jackson, Mich.
 - LESSMANN MFG. CO., E. 20 and Easton Blvd., Des Moines 4, Iowa
 - INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago 1, Ill.
 - LIFT TRUCKS, INC., 2425 Spring Grove Ave., Cincinnati 14, Ohio
 - MOBILIFT CORP., 835 S.E. Main St., Portland 14, Ore.
 - THE YALE & TOWNE MFG. CO., Roosevelt Blvd. & Haldeman Ave., Philadelphia 15, Pa.

TRUCKS, Motor (see Motor Trucks)

TURBINES, Steam

- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.
- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- THE EUCLID ROAD MACHINERY CO., 1361 Chardon Road, Cleveland 17, Ohio
- GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

TURBINES, Water

- ALLIS-CHALMERS MFG. CO., 975 So. 70th St., Milwaukee 1, Wisc.

TURNABLES, Track

- EASTON CAR & CONSTRUCTION CO., Easton, Pa.
- L. B. FOSTER CO., P.O. Box 1647, Pittsburgh 30, Pa.
- HARDINGE CO., INC., 240 Arch St., York, Pa.

- MOORE DRY KILN CO., 1220 W. State St., Jacksonville 1, Fla.
- STEARNS MFG. CO., INC., 600 E. Beecher, Adrian, Mich.

U

UNLOADERS, Boat

- DRAYOCORP., Dravo Bldg., Fifth & Liberty Aves., Pittsburgh 22, Pa.
- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wisc.
- WELLMAN ENGINEERING CO., 7000 Central Ave., Cleveland 4, Ohio

UNLOADERS, Box Car

- BAUGHMAN MFG. CO., INC., Shipman Road, Jerseyville, Illinois
- BONDED SCALE AND MACHINE CO., 2193 S. Third St., Columbus 7, Ohio
- BUTLER BIN CO., 945 Blackstone Ave., Waukesha, Wisc.
- HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
- THE FRANK G. HOUGH CO., 939 Sunnyside Ave., Libertyville, Ill.
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- LINK-BELT COMPANY, 307 N. Michigan Ave., Chicago 1, Ill.
- LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wisc.
- WEBSTER MFG. CO., West Hall St., Tiffin, Ohio

UNLOADERS, Pneumatic

- FULLER CO., 128 Bridge St., Catsaqua, Pa.
- GARDNER-DENVER CO., Quincy, Ill.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- ARTHUR REHBERGER & SON, INC., 320 Ferry St., Newark 5, N. J.
- SPROUT, WALDRON & CO., INC., Muncy, Pa.
- RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

UNLOADERS, Hopper Car

- BARBER-GREENE CO., 400 N. Highland Ave., Aurora, Ill.
- BAUGHMAN MFG. CO., INC., Shipman Road, Jerseyville, Ill.
- BONDED SCALE AND MACHINE CO., 2193 S. Third St., Columbus 7, Ohio
- BUTLER BIN CO., 945 Blackstone Avenue, Waukesha, Wisc.
- FULLER CO., 128 Bridge St., Catsaqua, Pa.
- C. S. JOHNSON CO., P. O. Box 71, Champaign, Ill.
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- LIPPMANN ENGINEERING WORKS, 4603 W. Mitchell St., Milwaukee 14, Wisc.
- THE OLIVER CORP., A. B. FARQUHAR DIV., 142 N. Duke St., York, Pa.

UNLOADERS, Block

- BUILDERS EQUIPMENT COMPANY, 4012 N. Central Avenue, Phoenix, Arizona

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

V

VALVES, Air

- DIXON VALVE & COUPLING CO., Hancock St. & Columbia Ave., Philadelphia 22, Pa.
- HOSE ACCESSORIES CO., Lehigh Ave. at 17th St., Philadelphia 32, Pa.

VALVES, Automatic

- THE FOXBORO CO., 38 Neponset Ave., Foxboro, Mass.
- R. E. LOVEKIN CORP., Schaff Bldg., 15th & Race Sts., Philadelphia 2, Pa.

VALVES, Bin

- BEAUMONT BIRCH COMPANY, 1505 Race Street, Philadelphia 2, Penn.
- BUELL ENGINEERING CO., 70 Pine Street, New York 5, N.Y.
- THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio
- FULLER CO., 128 Bridge St., Catasaqua, Pa.
- THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio
- STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora, Ill.

VALVES, Slurry

- FULLER CO., 128 Bidge St., Catasaqua, Pa.
- THE MINE & SMELTER SUPPLY CO., 17th & Blake, Denver 17, Colo.

VALVES, Water

- R-P&C VALVE DIV., American Chain & Cable Co., Inc., Reading Pa.
- DIXON VALVE & COUPLING CO., Hancock St. & Columbia Ave., Philadelphia 22, Pa.

VENTILATORS, Powered, Roof

- THE KIRK & BLUM MFG. CO., 3210 Farrer St., Cincinnati 9, Ohio

VIBRATING SCREENS (see Screens, Vibrating)

VIBRATING TABLES

- KIRK & BLUM MFG. CO., 3210 Farrer St., Cincinnati 9, Ohio

VIBRATORS for Chutes, Bins, etc.

- THE BIN-DICATOR COMPANY, 13946 Kercheval Avenue, Detroit 15, Michigan
- THE BRANFORD COMPANY, 145 Chestnut Street, New Haven, Conn.
- THE CLEVELAND VIBRATOR CO., 2828 Clinton Ave., Cleveland 13, Ohio
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
- MARTIN ENGINEERING CO., 704 Rock Place, Kewanee, Ill.
- SPO, INC., 6556 Grand Division Ave., Cleveland 25, Ohio
- SYNTRON COMPANY, 450 Lexington Ave., Hamer City, Pa.
- THE W. S. TYLER CO., 3615 Superior Ave., Cleveland 14, Ohio
- VIBRO-PLUS PRODUCTS, INC., 54-11 Queens Blvd., Woodside 77, N.Y.

VIBRATORS, Concrete Block

- ANCHOR CONCRETE MACHINERY CO., 1191 Fairview Avenue, Columbus 12, Ohio
- BERGEN MACHINE & TOOL CO., INC., 189 Franklin Avenue, Nutley 10, New Jersey
- THE BRANFORD COMPANY, 145 Chestnut Street, New Haven, Conn.
- THE CLEVELAND VIBRATOR CO., 2828 Clinton Avenue, Cleveland 13, Ohio
- COLUMBIA MACHINE WORKS, 107 South Grand, Vancouver, Washington
- CONCRETE TRANSPORT MIXER CO., 4987 Flyer Ave., St. Louis 9, Mo.
- FLEMING MFG. CO., Dept. C, Fleming Ave., Cuba, Mo.
- F. C. GEORGE MACHINE CO., INC., 100 S. Westmoreland Drive, Orlando, Fla.
- KIRK & BLUM MFG. CO., 3210 Farrer St., Cincinnati 9, Ohio
- MULTIPLEX MACHINERY CO., Div. of Multipack, Inc., Fremont St., Elmore, Ohio
- OSWALT ENGINEERING SERVICE, 1335 Circle Ave., Forest Park, Ill.
- SYNTRON COMPANY, 450 Lexington Ave., Hamer City, Pa.
- VIBRO-PLUS PRODUCTS, INC., 54-11 Queens Blvd., Woodside 77, N.Y.

VIBRATORS, Portable, Concrete

- THE BRANFORD COMPANY, 145 Chestnut Street, New Haven, Conn.
- CHICAGO PNEUMATIC TOOL CO., 6 East 44th St., New York 17, N.Y.
- THE CLEVELAND VIBRATOR CO., 2828 Clinton Ave., Cleveland 13, Ohio
- SYNTRON COMPANY, 450 Lexington Ave., Hamer City, Pa.
- THOR POWER TOOL CO., 175 N. State St., Aurora, Ill.
- VIBRO-PLUS PRODUCTS, INC., 54-11 Queens Blvd., Woodside 77, N.Y.

VOLTMETERS

- GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

W

WAGONS, Dump

- ALLIS-CHALMERS MFG. CO., 975 South 70th Street, Milwaukee 1, Wisconsin
- ALLIS-CHALMERS MFG. CO., Tractor Division, Milwaukee 1, Wisc.
- ATHEY PRODUCTS CO., 5631 W. 65th St., Chicago 38, Ill.
- CATERPILLAR TRACTOR CO., Peoria 8, Ill.
- LANDIS STEEL CO., 116 West A St., P.O. Box 248, Picher, Okla.
- WOOLDRIDGE MFG. CO., Hendy Ave., Sunnyvale, Calif.

WASHERS, Sand, Gravel, Stone (see Scrubbers)

WEIGH LORRIES

- ANCHOR CONCRETE MACHINERY CO., 1191 Fairview Ave., Columbus 12, Ohio
- BEAUMONT BIRCH CO., 1505 Race St., Philadelphia 2, Pa.
- BUTLER BIN CO., 945 Blackstone Ave., Waukesha, Wisc.
- CHAIN BELT COMPANY, 4649 W. Greenfield Ave., Milwaukee 1, Wisc.

THE FAIRFIELD ENGINEERING CO., 324 Barnhart St., Marion, Ohio

FANNING SCHUETT ENGINEERING CO., 4325 N. Third Street, Philadelphia 40, Pa.

THE HOWE SCALE CO., Rutland, Vt.

THE JEFFREY MFG. CO., 935 N. Fourth St., Columbus 16, Ohio

STREETER-AMET CO., 4101 N. Ravenswood Ave., Chicago 13, Ill.

WEIGHT RECORDERS

THE HOWE SCALE CO., Rutland, Vt.

THE C. J. JOHNSON CO., P. O. Box 71, Champaign, Ill.

SCIENTIFIC CONCRETE SERVICE CORP., 724 Salem Ave., Elizabeth 3, N. J.

STREETER-AMET CO., 4101 N. Ravenswood Ave., Chicago 13, Ill.

WELDING AND CUTTING EQUIPMENT, Oxyacetylene

AIR REDUCTION SALES CO., 60 E. 42nd St., New York 17, N.Y.

GENERAL SCIENTIFIC EQUIPMENT CO., 2735 W. Huntingdon St., Philadelphia 32, Pa.

VICTOR EQUIPMENT CO., 844 Folsom St., San Francisco 7, Calif.

WELDING MACHINES, Arc

AIR REDUCTION SALES CO., 60 E. 42nd St., New York 17, N.Y.

GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

HARNISCHFEGER CORP., 4400 W. National Ave., Milwaukee 46, Wisc.

LINCOLN ELECTRIC CO., 22801 St. Clair Ave., Cleveland 17, Ohio

METAL & THERMIT CORP., 100 E. 42nd St., New York 17, N.Y.

WELDING RODS & ELECTRODES

AIR REDUCTION SALES CO., 60 E. 42nd St., New York 17, N.Y.

ALLOY RODS COMPANY, P. O. Box 786, York, Penn.

AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.

AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.

THE CHAMPION RIVET COMPANY, Harvard Ave. & E. 108th St., Cleveland 5, Ohio

GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

HARNISCHFEGER CORP., 4400 W. National Ave., Milwaukee 46, Wisc.

HAYNES STELLITE CO., 725 S. Lindsay, Kokomo, Ind.

LINCOLN ELECTRIC CO., 22801 St. Clair Ave., Cleveland 17, Ohio

METAL & THERMIT CORP., 100 E. 42nd St., New York 17, N.Y.

PAGE STEEL & WIRE DIV., American Chain & Cable Co., Inc., Monessen, Pa.

STOODY CO., Whittier, Calif.

STULZ-SICKLES CO., 134 Lafayette St., Newark 5, N. J.

TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.

AMERICAN STEEL & WIRE DIV., UNITED STATES STEEL CORP., 614 Superior Ave. N.W., Rockefeller Bldg., Cleveland 13, Ohio

VICTOR EQUIPMENT CO., 844 Folsom St., San Francisco 7, Calif.

WALL COLMONOY CORP., 19345 John R St., Detroit 3, Mich.

WELDING RODS, Hard Facing

AIR REDUCTION SALES CO., 60 E. 42nd St., New York 17, N.Y.

ALLOY RODS COMPANY, P. O. Box 786, York, Penna.

AMERICAN BRAKE SHOE CO., 230 Park Ave., New York 17, N.Y.

AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.

THE CHAMPION RIVET COMPANY, Harvard Ave. & E. 108th St., Cleveland 5, Ohio

GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

HARNISCHFEGER CORP., 4400 W. National Ave., Milwaukee 46, Wisc.

HAYNES STELLITE CO., 725 S. Lindsay, Kokomo, Ind.

KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York

LINCOLN ELECTRIC CO., 22801 St. Clair Ave., Cleveland 17, Ohio

METAL & THERMIT CORP., 100 E. 42nd St., New York 17, N.Y.

PAGE STEEL & WIRE DIV., American Chain & Cable Co., Inc., Monessen, Pa.

STOODY CO., Whittier, Calif.

STULZ-SICKLES CO., 134 Lafayette St., Newark 5, N. J.

TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.

VICTOR EQUIPMENT CO., 844 Folsom St., San Francisco 7, Calif.

WALL COLMONOY CORP., 19345 John R St., Detroit 3, Mich.

WELDING SUPPLIES AND ACCESSORIES

AIR REDUCTION SALES CO., 60 E. 42nd St., New York 17, N.Y.

AMERICAN MANGANESE STEEL DIV., AMERICAN BRAKE SHOE CO., 389 E. 14th St., Chicago Heights, Ill.

CARLYLE RUBBER CO., INC., 62 Park Place, New York City 7, N.Y.

THE CHAMPION RIVET COMPANY, Harvard Ave. & E. 108th St., Cleveland 5, Ohio

GENERAL ELECTRIC CO., 1 River Road, Schenectady 5, N.Y.

GENERAL SCIENTIFIC EQUIPMENT CO., 2735 W. Huntingdon St., Philadelphia 32, Pa.

HARNISCHFEGER CORP., 4400 W. National Ave., Milwaukee 46, Wisc.

JACKSON PRODUCTS INC., 31739 Mound Road, Warren, Mich.

LINCOLN ELECTRIC CO., 22801 St. Clair Ave., Cleveland 17, Ohio

METAL & THERMIT CORP., 100 E. 42nd St., New York 17, N.Y.

VICTOR EQUIPMENT CO., 844 Folsom St., San Francisco 7, Calif.

WILLSON PRODUCTS INC., Reading, Pa.

WET PANS, Grinding (see Pans, Grinding)

WHEELS, Abrasive

RAYBESTOS-MANHATTAN, INC., MANHATTAN RUBBER DIV., 61 Willett St., Passaic, N. J.

SIMONDS ABRASIVE CO., Tacony & Fraley Sts., Philadelphia 37, Pa.

UNITED STATES RUBBER CO., 1230 Ave. of the Americas, New York 20, N.Y.

WHEELS, Tracklaying Type

STROH PROCESS STEEL CO., 1428 High St. N.S., Pittsburgh 12, Pa.

• A dot before name indicates ROCK PRODUCTS Advertiser

DIRECTORY

WHIRLEYS

AMERICAN HOIST & DERRICK CO., 63 S. Robert St., St. Paul 1, Minn.
 RICHARD P. WALSH CO., 30 Church St., New York, N.Y.

WINCHES (see Capstans)

WIRE & CABLE, Electric (see Cable, Electric)

WIRE CLOTH

BACON-PIETSCH CO., INC., 75 North Maple Avenue, Ridgewood, New Jersey
 • THE COLORADO FUEL AND IRON CORP., Continental Oil Building, Denver 2, Colorado
 • HEWITT-ROBINS, INC., 666 Glenbrook Road, Stamford, Conn.
 • IOWA MFG. CO., 916-16th St. N.E., Cedar Rapids, Iowa
 • KENNEDY-VAN SAUN MFG. & ENG. CORP., 2 Park Ave., New York 16, New York
 LUDLOW-SAYLOR WIRE CLOTH COMPANY, 634 S. Newstead Ave., St. Louis 10, Mo.
 • SIMPLICITY ENGINEERING CO., 213 S. Oak St., Durand, Mich.
 • SMITH ENGINEERING WORKS, 532 E. Capitol Dr., Milwaukee 12, Wis.
 • SEPARATOR DIV., SOUTHWESTERN ENGINEERING CO., 4800 S. Santa Fe Ave., Los Angeles 38, Calif.
 • THE W. S. TYLER CO., 3615 Superior Ave., Cleveland 14, Ohio
 • THE COLORADO FUEL AND IRON CORP., Wickwire Spencer Steel Division, 575 Madison Avenue, New York 22, New York

WIRE ROPE

• CABLE/HAZARD DIVISIONS, AMERICAN CHAIN & CABLE CO., INC., Wilkes-Barre, Penn.
 BETHLEHEM STEEL CO., Third St., Bethlehem, Pa.
 BRODERICK & BASCOM ROPE CO., 4203 Union Blvd., St. Louis 15, Mo.
 • THE COLORADO FUEL AND IRON CORP., Continental Oil Building, Denver 2, Colorado
 ELECTRIC STEEL FOUNDRY CO., 2141 N.W. 25th Ave., Portland 10, Ore.
 L. B. FOSTER CO., P.O. Box 1647, Pittsburgh 30, Pa.
 • JONES & LAUGHLIN STEEL CORP., 3 Gateway Center, Pittsburgh 30, Pa.
 • THE COLORADO FUEL AND IRON CORP., Wickwire Spencer Steel Division, 575 Madison Avenue, New York 22, New York
 • LESCHEN WIRE ROPE DIV., 5909 Kennerly Ave., St. Louis 12, Mo.
 • LE TOURNEAU-WESTINGHOUSE CO., 2301 N. Adams St., Peoria 3, Ill.
 • MACWHYTE COMPANY, 2949-14th Ave., Kenosha, Wisc.
 • JOHN A. ROEBLING'S SONS CORP., 640 S. Broad St., Trenton 2, N. J.
 • JOSEPH T. RYERSON & SON, INC., P.O. Box 8000-A, Chicago 80, Ill.
 • SAUERMAN BROS., INC., 530 S. Clinton St., Chicago 7, Ill.
 • AMERICAN STEEL & WIRE DIV., UNITED STATES STEEL CORP., 614 Superior Ave., N.W., Rockefeller Bldg., Cleveland 13, Ohio
 • COLUMBIA-GENEVA STEEL DIV., UNITED STATES STEEL CORP., 1403 Russ Bldg., San Francisco 6, Calif.
 • UNION WIRE ROPE CORP., 21st & Manchester Ave., Kansas City 26, Mo.

• A dot before name indicates ROCK PRODUCTS Advertiser

WIRE ROPE FITTINGS, Clamps, Clips, Cutters, Hooks, Sockets, etc.

• CABLE/HAZARD DIVISIONS, AMERICAN CHAIN & CABLE CO., INC., Wilkes-Barre, Penn.
 BETHLEHEM STEEL CO., Third St., Bethlehem, Pa.
 • THE COLORADO FUEL AND IRON CORP., Continental Oil Building, Denver 2, Colorado
 • THE COLORADO FUEL AND IRON CORP., Wickwire Spencer Steel Division, 575 Madison Avenue, New York 22, New York
 ELECTRIC STEEL FOUNDRY CO., 2141 N.W. 25th Ave., Portland 10, Ore.
 L. B. FOSTER CO., P.O. Box 1647, Pittsburgh 30, Pa.
 • JONES & LAUGHLIN STEEL CORP., 3 Gateway Center, Pittsburgh 30, Pa.
 THE THOMAS LAUGHLIN CO., 143 Fore Street, Portland 6, Maine
 • LESCHEN WIRE ROPE DIV., 5909 Kennerly Ave., St. Louis 12, Mo.
 • MACWHYTE COMPANY, 2949-14th Ave., Kenosha, Wisc.
 MADESCO TACKLE BLOCK CO., P.O. Box 148, Easton, Pa.
 PELL CABLE CUTTER CO., 55 New Montgomery St., Room 820, San Francisco 5, Calif.
 • JOHN A. ROEBLING'S SONS CORP., 640 S. Broad St., Trenton 2, N. J.
 • JOSEPH T. RYERSON & SON, INC., P.O. Box 8000-A, Chicago 80, Ill.
 SANDERSON-CYCLONE DRILL CO., 157 S. Main St., Orrville, Ohio
 • SAUERMAN BROS., INC., 530 S. Clinton St., Chicago 7, Ill.
 TAYLOR-WHARTON IRON & STEEL CO., High Bridge, N. J.
 • AMERICAN STEEL & WIRE DIV., UNITED STATES STEEL CORP., 614 Superior Ave., N.W., Rockefeller Bldg., Cleveland 13, Ohio

WIRE ROPE DRESSING COMPOUNDS (see Lubricants)

WIRE ROPE, Slings

• CABLE/HAZARD DIVISIONS, AMERICAN CHAIN & CABLE CO., INC., Wilkes-Barre, Penn.
 BETHLEHEM STEEL CO., Third St., Bethlehem, Pa.
 BRODERICK & BASCOM ROPE CO., 4203 Union Blvd., St. Louis 15, Mo.
 • THE COLORADO FUEL AND IRON CORP., Continental Oil Building, Denver 2, Colorado
 • THE COLORADO FUEL AND IRON CORP., Wickwire Spencer Steel Division, 575 Madison Avenue, New York 22, New York
 ELECTRIC STEEL FOUNDRY CO., 2141 N.W. 25th Ave., Portland 10, Ore.
 L. B. FOSTER CO., P.O. Box 1647, Pittsburgh 30, Pa.
 • JONES & LAUGHLIN STEEL CORP., 3 Gateway Center, Pittsburgh 30, Pa.
 • LESCHEN WIRE ROPE DIV., 5909 Kennerly Ave., St. Louis 12, Mo.
 • MACWHYTE COMPANY, 2949-14th Ave., Kenosha, Wisc.
 • JOHN A. ROEBLING'S SONS CORP., 640 S. Broad St., Trenton 2, N. J.
 • JOSEPH T. RYERSON & SON, INC., P.O. Box 8000-A, Chicago 80, Ill.
 • UNION WIRE ROPE CORP., 21st & Manchester Ave., Kansas City 26, Mo.
 • AMERICAN STEEL & WIRE DIV., UNITED STATES STEEL CORP., 614 Superior Ave., N.W., Rockefeller Bldg., Cleveland 13, Ohio
 • COLUMBIA-GENEVA STEEL DIV., UNITED STATES STEEL CORP., 1403 Russ Bldg., San Francisco 6, Calif.

WHERE TO BUY

NEW BELT CONVEYOR: Mine type, 24" belt, 1100 ft. cc. complete with all mechanical parts, motor and drive. NEW, UNUSED.

JAW CRUSHERS: Traylor 42" x 48", Universal 30" x 42", NEW, UNUSED; Allis Chalmers 18" x 30".

PULVERIZERS: Hardinge steel lined conical Ball Mills, complete with motors and auxiliary equipment for dry grinding, sizes 6" x 22", 10" x 36" and 10" x 48", Marcy Rod Mill size 8" x 12", center peripheral discharge.

DERRICKS: 50 ton Sift Leg, 75 ft. boom, complete, 200 ton Guy Derrick, 180 ft. mast, 160 ft. boom.

DRAG SCRAPER: Sauerman 75 H.P., 440 volt, complete.

MINE HOISTS: Single and double drum 100 to 1500 H.P. with all electrical equipment. Complete specifications, drawings and photos available.

LOCOMOTIVE CRANE: Link Belt 25 ton capacity, standard R.R. gauge, gasoline powered, cast steel trucks, air brakes with or without 1 1/2 yd. Williams clam shell bucket. Thoroughly modern, excellent condition. For sale or rent. Located Minnesota.

CLASSIFIERS: 4-Akins 54" x 34 ft. and four Wemco 78" x 28 1/2 ft. Simplex, double pitch, wet type, with 220/440 volt synchro gear motors and lifting device. Four located Nevada. NEW condition.

We Buy and Sell Equipment Throughout
North and Central America

A. J. O'NEILL
LANSDOWNE, PA.

Phila. Phones MADison 3-8300 — 3-8301

AIR COMPRESSORS — ELECTRIC

3800 Ft. Inger. Rand 635 HP 2300
 3078 Ft. Inger. Rand 500 HP 440
 3070 Ft. Chgo. Fnd-B. 500 HP 2300
 1888 Ft. Chgo. Pneu. 350 HP 2300
 1098 Ft. Inger. Rand 175 HP 440
 781 Ft. Chgo. Pneu. 125 HP 220/440

LOCOMOTIVES

5-44 Ton G.E. Diesel electric.
 1-25 Ton G.E. Diesel electric.
 1-10 Ton Davenport Gasoline.
 1-6 Ton Brookville diesel.

25 TON DERRICKS

1-Model E Wiley-60 ft. Boom, steel stiff leg Derrick.

5 NEW MERRICK WEIGHTMETERS

Model E for 24", 30", 36", 42" Belt.

JAW CRUSHERS

10" x 1" Allis Chalmers Blake.
 40" x 10" and 30" x 10" Goo Roads Roller Bearing.
 20 x 10, 30 x 13, 36 x 24 Farrel Blake.
 30 x 42 Buchanan Blake.
 42 x 48 Traylor Bulldog, Blake.
 60 x 48 Power & Mining, Blake.

PRODUCTION CRUSHERS

2 Ft. Symons, standard, boarse bowl.
 #636 Allis Chalmers hydrocone.
 10" Allis Chalmers Superior McCully.

HAMMER MILLS

36" x 24" Jeffrey R-2.
 36" x 30" Jeffrey B-3.
 #6 XD Gruender reversible.
 SXT-11 Pennsylvania Thor.

PULVERIZERS

Hercules Junior 3 Roll Mill.
 #1 Raymond Automatic Pulverizer.
 #47 Raymond IMP. Mill-50 HP.

4 KILNS & DRYERS

4' x 20', 6' x 40', 6' x 60', 6' x 80'.

R. C. STANHOPE, INC.
60 E. 42nd St., New York 17

Equipment Values!

TRACTOR-SCRAPER — Caterpillar DW21, Ser. #BW279. Machine was purchased new in summer 1952. Has been rented and demonstrated only. All factory modifications have been made. The current hour meter reading is 1719. The 24.00 x 29 tires are approximately 85% to 90% good. This machine would require \$36,000 to replace new. f.o.b. Louisville, Ky. \$19,500.00

TRACTOR-DOZER — Allis-Chalmers Diesel Model HD5, Ser. #124, a 60" ga. tractor equipped with a Drott hyd. straight dozer and c.u. with heavy duty radiator guard. Has 13" grouser tracks and the entire track group is approximately 60% good. Equipped with crankcase guard and front pull hook. Ideally suited for clean-up jobs and would make someone a very good custom working tractor.

f.o.b. Ashland, Ky. \$2,935.00
AIR COMPRESSOR — Gardner-Denver 105 Cu. Ft., Ser. #131919, equipped with Buda 4 cyl. gasoline engine mounted on two 7.50 x 16 pneu. tires. An all water cooled outfit that has been rented only. Just retired from our rental fleet and in A-1 mechanical condition.

f.o.b. Evansville, Ind. \$1,395.00
ENGINE — Caterpillar Model D3B7X Diesel, Ser. #228165. A 6 cyl. Diesel engine which develops 250 h.p. at 2000 RPM. Equipped with enclosed type clutch with steel channel base, radiator, fuel tank, safety shut-off device, blower and tachometer. Machine has only 500 hours on the hourmeter. Has been completely remodeled with the changeover group.

f.o.b. Paducah, Ky. \$3,450.00
TOWING WINCH — Hyster Model D&L, Ser. #RRL-67936-AB. Reversible direct gear driven towing winch which is equipped with automatic worm brake. This winch replaces new for over \$3,000.00. Rented only — never sold.

f.o.b. Louisville, Ky. \$1,900.00

ROY C. WHAYNE
SUPPLY CO.

800 W. MAIN ST., LOUISVILLE, KY.
 EVANSVILLE, IN. PADUCAH, KY. ASHLAND, KY.

TRUCK MIXER FLEET FOR SALE

MACK TEN WHEEL TRUCKS — JAEGER-REX-TRUCK MIXERS

ALL AVAILABLE IMMEDIATE DELIVERY

MIXER				TRUCK				Selling Price
Year	Make	Model	Ser. No.	Year	Make	Model	Ser. No.	
1950	Jaeger	4½ HMTL	J12118	1947	Mack	LFSW	LF2D-1099	\$ 5,750
1951	Jaeger	4½ HMC	J14344	1947	Mack	LFSW	LF2D-1127	6,250
1952	Jaeger	5½ TC	J13350	1947	Mack	LFSW	LF2D-1233	6,300
1947	Jaeger	5½ HMB	None	1942	White	—	251085	3,050
	Rex	5½ yd.	TNN-288	1942	White	—	261134	3,500
1950	Jaeger	5½ TC	J11633	1950	Mack	LJSW	LJ2D-2880	9,450
1950	Jaeger	5½ TC	J11632	1950	Mack	LJSW	LF2D-2885	9,450
1950	Jaeger	5½ TC	J11630	1950	Mack	LJSW	LJ2D-2883	9,450
1951	Jaeger	5½ HMC	J12723	1950	Mack	LJSW	LJ2D-2882	9,450
1950	Jaeger	5½ TC	J11634	1950	Mack	LJSW	LJ2D-2879	9,450
1952	Jaeger	5½ TC	J13349	1950	Mack	LJSW	LJ2D-2881	9,750
1950	Jaeger	5½ TC	J11635	1950	Mack	LJSW	LJ2D-2888	9,450
	Rex	4½ yd.	TH302	1950	Mack	LJSW	LJ2D-2886	8,750
1950	Jaeger	5½ TC	J11629	1950	Mack	LJSW	LJ2D-2887	9,450
1947	Rex	5½ yd.	TNN-360	1952	Mack	LFSW	LF2D-2553	8,950
1952	Jaeger	5½ TC	J13347	1952	Mack	LFSW	LF2D-2557	9,750
1952	Ransom	5½ yd.	52932	1952	Mack	LFSW	LF2D-2555	9,250
1952	Jaeger	5½ TC	J11631	1952	Mack	LFSW	LF2D-2556	9,450
1952	Jaeger	5½ TC	J13355	1952	Mack	LJSWX	LJ2DX-4884	12,900
1952	Jaeger	8TC	J13341	1952	Mack	LMSW	LM2DX-2906	16,500
1947	Rex	4½ yd.	TR-473	1947	Mack	LFSW	LF2D-1116	5,800
1947	Rex	4½ yd.	None	1947	Mack	LFSW	LF2D-1117	5,800
1952	Ransom	3 yd.	None	1945	Fed.	—	None	3,500
1944	Blaw-Knox	4 yd.	None	1944	White	—	251363	3,500
1944	Blaw-Knox	4 yd.	None	1944	White	—	None	3,500
1944	Blaw-Knox	4 yd.	None	1944	White	—	251867	3,500
1947	Rex	5 yd.	None	1944	White	—	250731	3,500
1944	Jaeger	4 yd.	None	1944	White	—	251783	3,500
1944	Jaeger	4 yd.	None	1944	White	—	None	3,500
1944	Jaeger	4 yd.	None	1944	White	—	256987	3,500
1952	Jaeger	5½ TC	J13353	1950	Mack	LJSW	LJ2D-2884	9,450
1952	Jaeger	5½ TC	J11628	1952	Mack	LFSW	LF2D-2554	9,450
1952	Jaeger	5½ TC	J11626					2,750
1947	Rex	5½ yd.	TNN-407					1,250
1952	Jaeger	4½ HMC	J14345					3,450
1947	Jaeger	4½ HMB	None					1,500
1946	Jaeger	4½ HMB	None					1,500
1947	Rex	4½	TR286					950
1947	Rex	4½	TR288					950
1946	Jaeger	5TC	None					450
1951	Ransom	5½	52355					2,750
1947	Jaeger	5½	J11014					1,750
6 1952	Jaeger	6½ HMC						3,750
6 1949	Jaeger	4½ HMB						2,500
3 1950	Ransom	5½ Hi-Dump						2,500

This equipment used on one job with careful supervision and maintenance.

A number of truck mixers unmounted can be used to meet your requirements—will substitute truck or mixer.

Terms can be arranged with responsible purchasers.

JAEGER-LEMBO MACHINE CORPORATION

Northern Blvd. at 127th Street
Flushing 52, New York
Newtown 9-7777

JAEGER-LEMBO MACHINE CORPORATION OF NEW JERSEY

U. S. Highway 22
Springfield, New Jersey
Millburn 6-1066

TC indicates horizontal mixer;

HM indicates high discharge mixer.

WHERE TO BUY

CONVEYORS - CONVEYOR PARTS - IDLERS BELTING - PULLEYS - VIBRATING SCREENS SCALES - CRUSHERS - FEEDERS

WRITE, WIRE OR PHONE. IMMEDIATE SHIPMENT FROM STOCK

NEW TROUGHING IDLER CONVEYOR BARGAINS

We take our loss on our stock of short length belting and previous model idlers. You save as much as 50% by buying the BONDED CONVEYOR SPECIALS listed with conveyor belting in two pieces. Belting is 4 ply, 28 oz. duck, 1/4" top rubber cover and 1/32" bottom cover.



CONVEYOR BELTING

Heavy duty rubber belting having high tensile strength, tough cotton duck, strong carcass and proper flexibility. For boxes, bags and bulk materials. Troughs easily.

Famous brands at deep cut prices.
New; Fresh Stock

Width	Ply	Top Cover	Bottom Cover	Duck Canvas	Price
18"	4	1/8"	1/32"	28 oz.	\$2.65/ft.
24"	4	1/8"	1/32"	28 oz.	3.40/ft.
30"	4	1/8"	1/32"	28 oz.	4.20/ft.

Additional widths and plies available at low prices. Write for free sample.

VIBRATING SCREENS

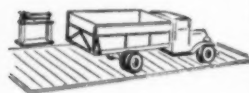
For sizing and separation of Rock, Sand, Gravel, Slag, Coal and many other uses. Shaft is mounted on self-aligning bearings and made in heavy duty eccentric shaft types; 1 to 5 decks, 3'x8' to 5'x14'. Others from 2'x4'. Wire cloth or plate included in price.



Priced from\$431.00

MOTOR TRUCK SCALES

For stationary and portable applications. Scales have steel lever system complete with structural steel weighbridge. Capacities to 50 tons. Recording beams available.



20 Ton Truck Scales...\$525.00
26 Ton Truck Scales...\$82.00
33 Ton Truck Scales...\$25.00

CINDER, PUMICE, PERLITE CRUSHERS

Bonded double roll crushers are available with Smooth, Fine or Coarse Corrugated rolls or any combination of same for crushing Lightweight Aggregate, Pumice, Perlite, Chemicals and similar material.



Capacities to 100 tons per hour. Steel hoppers included. Priced from\$479.00

RECIPROCATING PLATE AND PAN FEEDERS

For controlled feed of Aggregate, Sand, Gravel, Crushed Stone, Cinders, Heavy Rock and almost any other bulk material to Crushers, Screens, Conveyors, Mills and other process machinery.



Capacities to 225 tons per hour. Priced from\$423.00

WRITE FOR CATALOGUE AND PRICES

BONDED SCALE AND MACHINE COMPANY

Mfrs. of Scales, Conveyors, Conveyor Parts, Idlers, Vibrating Screens, Crushers and Feeders

PHONES: Garfield 2186; Franklin 6-8898, Evenings.

128 BELLVIEW

COLUMBUS 7, OHIO

FOR SALE

1-16" Diesel Steel Hull Dredge

1-22" Dredge, Steel Hull, Diesel

1-12" Dredge, Portable Hull, Diesel

2-Steel Hull Steam Whirley Derrick Boats 90' Boom

3 1/2 Cu. Yd. Clam Shell Hard Digging Round Nose Bucket With Teeth

5-Drum Dredge Hoist

1-Spud 24" Dia. 1" Wall, 46' Long

80 K.W. F.M. D.C. Generating Set

Fairbanks Morse Model 41 4 cyl. 8 1/4" x 10 1/2"

H. P. GUION

New York 18, N. Y.

303 W. 42nd St.

Tel. Circle 6-0919

Special Crushers !!

Diamond 40x22 Roll Crusher. Diesel powered.
Cedar Rapids 40x30 Hammermill Twin GMC Diesel.
Jeffrey Flex-Tooth 42x36" hammermill.
Pennsylvania C-4-30 Reversible Hammermill.
Cedar Rapids 40x35 Hammermill, Diesel powered.
Raymond No. 412 bowl pulverizer mill.
FARREL BACON 36" x 48" Jaw Crusher.
Traylor TY 4' with 200 hp. electric motor.

DREDGES

Ellicott 12"x10" new pump with new V-12 335 HP Diesel engine. Port. steel hull.
Ellicott 8' with cutter. Diesel Hull 48"x18"x3'6".
8" Hydraulic. Diesel. On 32"x8" steel pontoons.
Amaco 10" Diesel power portable. Excellent.
6" portable Diesel complete with cutters, etc.
8" H-P twin Diesel drive. Complete.

CONCRETE PLANTS AND EQUIPMENT

Hetzl 1000 bbl. cement silo with elev. scales, etc.
Smith 56-8 two yard tilting mixer. Complete.
Johnson 200 yd. 5 compartments. Complete large plant.
Noble CA 214-240 ton, 4 compartments. agg. Large cement silos.
Johnson 3 comp. 100 ton agg. 400 bbls. cement bin with 24"x120" B-G agg. conveyor.
Butler 250 bbls. cement bin with B-K 100 ton 3 comp. agg.

NEW F-S 100 ton agg. bin 3 comp.

NEW F-S 400 bbl. cement bin complete.

CRUSHING PLANTS

Cedar Rapids Portable Super Tandem, excellent.
Pioneer 40-V. New 1946. Portable Diesel power.
Pioneer WA-300, crushing, washing, screening.
Cedar Rapids AAA Port. Primary crusher 20x36.
Cedar Rapids 40x33 Port. Secondary, Diesel.

CRUSHERS

JAW: Acme 10x20, 11x28, 14x28, 10x42, 16x32, 18x32, 25x40. Eagle 20x36. Diamond 24x36".
Cedar Rapids 10x20, 20x36, 25x40. Farrell 10x20, 13x20, 14x26, 15x26, 30x45. Buchanan 30x42.
Good Roads Reliance 15x20. Traylor 15x26, 24x36.
Allis-Chalmers 30x18. Good Roads 10x30. Tel-smith 15x22. Champion 10x20, 10x10, 12x10, 15x30.
GYRATORY: Allis-Chalmers-McQuay, 9", 7 1/2", 8", 9", 12K, 20", 30", 42", 14". Newhouse, 24", 36", Gyro-sphere, 18", 28". Intercore Tel-smith, Tel-smith 5H, 10-B, 13-B, 16-B. Kennedy Van Buren L-19, 25 1/2"-8, 37". Traylor Ty 2 1/2", T-4 1/2".
ROLL: Cedar Rapids 40x20. Diamond 40x22. Pioneer 30x18. Tel-smith 24x16. Pioneer 30"x18". New Holland 24x18.

HAMMERMILL: Size 4 Williams Jumbo, Pennsylvania 8x2, 22x22. Cedar Rapids 20x33. Jeffrey 36x22. Jeffrey 36x24, 36x40.

BALL MILL: Hardinge 10'x18". K.V.S. 6'x8" Type M Air Scept. 3' H 6'x6". Hardinge Conical 8'x22". Colorado Iron Works 5'x16". Marcy No. 64 1/2. Hardinge conical 10'x36".

ROD MILL: March 5'x6", 3'x6". Allis-Chalmers 4'x8". Hardinge No. R 206. Marcy 8'x12". Hardinge 8'x22".

CONE: Symons 2' coarse bowl, 3' standard head. TUEB MILL: Smidth 5 1/2'x20. K.V.S. 4'x7". Traylor 5'x22".

DRIERS: Struthers-Wells 7'x61'. others 7'x20", 6'x8", 7'x10", 6'x10" and Cedar Rapids 60'x24".

SHOVELS-CRANES-DRAGLINES

P&H 955 ALC Crane 2 1/2 yds. 120' boom. 1951.
P&H 655-B, 1 1/2 yd. Diesel Crane, 60' boom.
P&H 255-A, 3/4 yd. Shovel-Crane, Diesel.
N-W 80-D 2 1/2 yd. Dragline, Diesel. 100' boom.
N-W Model 6, 1 1/2 yd. Diesel Shovel.
Buc-Erie 51-B Diesel Shovel. Practically new.
Northwest 80-D Diesel Shovel 2 1/2 yd. Record.
Lorain L-829 2 yd. Shovel-Drag-Crane 100' boom.
Northwest 80-D Shovel-Drag. New 1948. Excellent.
Lima 1201, 2 1/2 yd. Diesel Shovel.
Manitowoc 3500, 2 1/2 yd. High Lift Shovel.
Buc-Erie 51-B Diesel Shovel, 2 1/2 yd.
Lorain Model MC 414, Moto-Crane, 85' Boom. Etc.

SCREENS

Seco Double deck 6'x12".
Kennedy-Van S. 4'x10' three deck.
Tel-smith heavy duty washer 60'x13".
Diamond 4'x10' three deck.
Lippman 4'x12' single deck.
Simplicity 4'x10' four deck.
Symons 4'x14' double deck.
Tyler 4'x10' two deck heavy duty, motor, Gen. Set.
Hobbs Vibrex 3 1/2 deck 4'x12' Model 48-144.

TRACTORS

2 Cat. D8 Angledozer with DDPFC rebuilt.
Int. TD-18A with B-E Bulldozer.
Int. TD-24 with B-E Cable Bulldozer.
All-Chal. HD19 Angledozer, Hydraulic.
All-Chal. HD17 with Gar Wood angledozer.
Allis-Chal. HD19 with hydraulic control angledozer.
Cat. D4 Tractor with 1 yd. bucket, hydraulic

LOCOMOTIVES

45 Ton G.E. Diesel Elec. Loco., std. ga.
25 Ton Plymouth gas loco., std. ga.
Vulcan 20 ton standard gauge type 0-4-0 gas.
20 Ton Vulcan, gas, std. ga., rebuilt.
25 Ton Vulcan steam, std. ga., slide tank.
15 Ton Whitcomb 36" ga. gas.
Plymouth Model ULDA std. ga., 10 ton, Diesel.

DERRICKS

Steel 50 ton stiff leg derrick 90' boom. Complete.
American Terry 20 ton Guy Derrick, 100' boom.
Clyde 30 ton stiff leg 90' boom.
Guy Derrick, 15 tons, 115' mast, 105' boom.
American 25 ton stiff leg derrick, 90' boom.
Special 35 ton stiff leg derrick, 100' boom.
Nat'l Bridge 30 ton Guy Derrick, 100'.
American 30 ton stiff leg, 100' boom.

ASPHALT PLANTS

Madsen 4000# Port. Complete. Excellent.
B-Green Port. contin. 842 Mixer, 832 Dryer.
Overlander Monotrol Bit. Mixing Plant, T-34.
Model 8-100 Simplicity, Diesel powered.
Hetherington-Berner Moto-Paver.
Barber-Greene Plant 848 Mixer, 836 Dryer Diesel.
Cummer 2500# Hot Mix Plant.
Monotrol complete plant. Three years old.

CABLEWAYS

Sauerman slack line 1 1/4 yd.; electric 90' mast.
Sauerman 1 yd. with 100 hp. electric motor, complete.
Sauerman 1 yd. with Wakenha gas hoist.

RICHARD P. WALSH CO.

30 Church St. New York, N. Y.
Cortland 7-0723 Cable: RICHWALSH

FOR SALE

4-RECONDITIONED MODEL 250-472 DART TRUCKS AS ILLUSTRATED



24 ton capacity, 16 yard rock bodies, with Hercules DFXH 240 HP diesel engines, Fuller transmission, Timken Bogie, 1400 x 24 new and recapped tires, priced

at \$11,500.00 each, F.O.B. cars, Phoenix, Arizona. Will lease-purchase to responsible firms.

CALL OR
WRITE: **C. R. TEMPLETON, OR
HAROLD R. BONE**

STATE TRACTOR & EQUIPMENT CO.

407 S. 17th Avenue
Phoenix, Arizona

P. O. Box 6126
Phone: Alpine 2-1731

Quarry Equipment

2036 Cedarapids AAA portable primary, diesel power.
1036/2418 Cedarapids Jr. Tandem on rubber. Cedarapids Rock-It plant w/2025 jaw, 3033 hammermill.
2020 Cedarapids double impeller. New condition.
936 Teismith Wheeling jaw.
10x7 Allis-Chalmers Blake type jaw crusher. Rebuilt.
#1 Cedarapids Kubit impact breker. New condition.
B-3 Jeffery swing hammer pulverizer. Rebuilt.
15 cu. yd. Cedarapids sand drag. New.
60-ton, 2-comp., 8'x18' storage bin w/clam gates.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also belt. 24" dia. x 30" face magnetic pulley.

SHOVELS AND CRANES

Lorain 75B, 1 1/4 yd. diesel.
Lorain MC-414 Moto-Crane.
Lorain Mc-4 Moto-Crane.
Link Belt LS85 Diesel Combination.
Unit 514, 1/2 yd. gasoline crawler shovel, rebuilt.
Lorain 30A, 1/2 yd. gas combination.

WELL DRILLS & TOOLS

Sanderson-Cyclone No. 42 well drill.
Sanderson-Cyclone No. 44 well drill.

AIR COMPRESSORS

500 cu. ft. Gardner-Denver diesel, rebuilt.
500 cu. ft. Ingersoll-Rand.
865 cu. ft. Gardner-Denver. New condition.
105 cu. ft. Schramm gas powered on 4 steel wheels.
Worthington 2-stage, water-cooled, vertical 250#, 60 CFM, new condition.

L. B. SMITH, INC.

Dept. A
CAMP HILL, PA.
Phone Harrisburg 7-3431

QUALITY EQUIPMENT

BINS

45 to 450 ton, steel.

CRUSHERS

18"x36" Jaw, Traylor, Bulldog.
14"x16", Bartlett & Snow, 2 roll.
48" Symons, vert. disc.
42"x14" Traylor, 2 roll.
50" Raymond, 5 roll, high side.
Raymond #1 feed conveyor and cyclone.
5"x8", Sturtevant, roll.

FEEDERS

Syntron, type F350 vibrating.
Allis Chal. 26"x12"x6" vibrating.
42"x10" Apron 10 HP motor.
18"x11'6" Apron 5 HP motor.
36"x34" Apron.

KILNS—COOLERS—DRYERS

8' x 125' x 5/8".
7' x 160' x 5/8" (2).
7' x 120' x 5/8" (2).
7' x 60' x 1/2".
810-16 Roto-Louvre.
5' x 80' x 1/2" Ruggles-Cole.
4'6" x 50' x 1/4" with lifters.
4'6" x 40' x 1/4" Traylor.
4' x 80' x 1/4".

MAGNETIC BELT CONVEYORS

18" x 65' centers, complete.
30" x 75' centers.

MILLS

23" x 12' Pug, double shaft, L.B.
4' x 20' Paddle, double shaft.
6' x 8' Abbe, ball.
6' x 8' Patterson, Pebble.
Size B, Abbe.
Raymond No. 402, Bowl.

SCREENS

4' x 10' Seco, double deck.
4' x 7' Tyler-Hummer, single deck.

Write for Our Catalog

HEAT & POWER CO., INC.

70 PINE ST., NEW YORK 5

Manover 2-4890

Machinery & Equipment Merchants

BUCKET ELEVATORS AND CONVEYORS

Super Cap. enclosed elev. 20" x 80".
Enclosed Elev. 6" x 36" on chain.
Enclosed 8" cement elevator 66'.
Enclosed 8" spaced bucket elevator 40'.
10" and 12" bucket elevators 25' to 75' high.
14" and 16" bucket elevators 35' to 75' high.
20" continuous bucket elevator on belt.
12" bucket elevator, continuous on belt.
14" and 16" continuous bucket elevators on belt.
Enclosed 6" x 28' on belt.
Barrel, sack and keg chain elevators.
Repair parts for elevators and drives.
New and used elevator buckets, all types.
200' Rex 4" pitch malleable roller chain, A42 attach.
1200' 6" pitch malleable roller chain, 126C-K2.
Comb. chain: C102B, C102 1/2, C131, C110, C111.
Ley chain: 823, 825, 835, 844 with attach.
Detach. chain: 45, 55, 67, 77, 85, 88, 95, 103, 114.
Steel roller chain: SS88, 517, 522, 527, SS40.
Detachable steel chain: No. 45, 51, 55.
No. 445 pinle chain with extended pins.
New trough belt idlers: 14", 16", 18", 24", 30" & 36".
Used 16", 18", 20", 30", 36", and 42", trough idlers.
New and used head & tail pulley terminals.
180 roller bearing flat idlers, 5" x 20".
Flanged 42" long 3 3/4" dia. idlers.
Steel apron feeder 18" wide 6' long.
Link Belt apron feeder 24" wide 45' long.
Vibrating feeders with controllers. Jeffrey No. 2A.
2 Westinghouse 1 hp. vibrators 3500 rpm.
Eccentric roller bearings, 2-15/16".
Gravity roller conveyors 3" x 20" wide.
Screw conveyors 6" to 16".
New and used conveyor belt.
New & used repair parts for belt conveyors.
Portable belt conveyors.
Belt training idlers 16", 24", 30".
Rubber Disc return idlers, 16", 30", 36", 42".
G. A. UNVERZAGT & SONS, INC.
136 Coit Street, Irvington 11, New Jersey

NEW LOCATION

We have moved our Executive Offices from New York City and our Warehouse and Shops at Newark, N. J., to

HOBOKEN, NEW JERSEY

where we can continue our 36 years of service to you.

ROTARY DRYERS:

8—6'x40', 5'x40' Ruggles-Coles; 54' x25' Class Xf-4 Ruggles-Coles, also 3—3'x50', 5'x50', 6'x60', 7'x70' Direct Heat. Also 3—6'x50' Louisville Rotary Steam Tube.

3—Link Belt Roto Louvre Dryers #207-10 (2'7"x10'); #502-16 with all stainless steel contact parts; #604-20.

3—3'x50' (or Coolers) made by Bonnot Co., Canton, Ohio.

ROTARY KILNS:

1—8'x150' Vulcan Iron Works, ¾" shell, complete; 3'x50', 4'x20', 5'x40', 6'x60', 7'x45', 7'x55', 8'x72'.

CRUSHERS:

Jaw—2'x6", 6'x15" Sturtevant, 18" x36" and 24" x36" Farrel; 42" x48" Traylor; Rolls; 42" x16" Allis Chalmers Type B; 24" x32" Penna. Single Roll. Portable Plants—Cedar Rapids 1036-BBB; 2540-AAAA, 2036-AAA, Also Pioneer with 30" x42" primary and secondary Crushers, all Diesel driven.

PULVERIZERS:

1—5 roll Williams High Side.
6—No. 1, 0, 00, 000 Raymond Mills.
3—No. 0, 00, 8" Raymond Screen Mills.
2—No. 51 Raymond Imp. Mills.
3—Mikro No. 4TH, 2TH, Bantam SH.

BALL AND TUBE MILLS:

6—Hardinge Mills, 3'x8", 5'x22", 6' x22", 8'x48".
4—Tube Grinding Mills, made by Traylor, E. & M. Co., Allentown, Pa. Silex Lines, 4'x13', 4'6"x18'6", 5'x22" and 5'x20".
8—Pebble Mills, porcelain lined; 3—6' dia.x8", 800 gals. each. 1—6'x5', 3—5'x4', each with ball charge.

AIR SEPARATORS:

2—Raymond 6'x16" dia.; 1—8' Gayco; 1—16' Sturtevant.

LIME HYDRATING PLANT:

1—Complete Lime Hydrating Plant, incl. Kreitzer Hydrator, Raymond Pulverizer, Jeffrey Pulverizer, Hammer Screen, etc.

Only a Partial List.

Send us your inquiries for Shovels, Cranes, Draglines; Jaw, Gyratory and other Crushers; Symons and Teismith Cones; complete Portable Crushing Plants; Rotary Kilns and Coolers; Air Compressors, Conveyors and FULL LINE OF CHEMICAL PROCESS EQUIPMENT.

OUR 37TH YEAR

CONSOLIDATED PRODUCTS COMPANY, INC.

Observer Highway & Bloomfield St.

HOBOKEN, NEW JERSEY

HO 3-4425

N. Y. Tel. BA 7-0600

We buy your idle equipment.

IMMEDIATE DELIVERY

A-C Model HD-14 Tractor, completely rebuilt and guaranteed, with cable Bulldozer, very reasonable.

A-C Model HD-5G Endloader, rebuilt and guaranteed.

A-C Model AD-3 Motor Patrol, rebuilt and guaranteed.

LeTourneau Super C Tournapull, reasonable.

Buckeye Model 402 Ditcher, rebuilt, fair price.

A-C Model B Wheel Tractor, rebuilt and guaranteed, with new mowing attachment, low price.

Schild Bantam Truck Crane, good condition, very reasonable.

A-C Model HD-10W Tractor, completely rebuilt and guaranteed, with either hydraulic or cable bulldozer, very reasonable.

Cedar Rapids Junior Tandem Gravel Plant with primary and secondary crushing units plus power, good condition. \$11,000.00.

Caterpillar D-6 Tractor with bulldozer, less than 500 hours, reasonably priced.

A-C HD-9 Tractor with inside mounted bulldozer and winch, good condition, reasonably priced.

1—Caterpillar D-8 Tractor with Bulldozer.

1—Adams 414 Motor Patrol.

1—La Plante Choate 14-18 Scraper.

1—Caterpillar D-4 Endloader. Poor condition, very cheap.

1—International TD-9 Tractor with Bucyrus-Erie hydraulic Endloader, fair condition, cheap.

1—A-C Model HD-7W Tractor with Garwood hydraulic Bulldozer, reasonable.

ILLINOIS Road Equipment Co.

1310 E. Jefferson St. — Dial 2-7709 — Springfield, Ill.

PIPE PREFABRICATION

PILING—Tubular & Sheet



- Pile Points & Sleeves
- Valves
- Fittings
- Tube Turns

Pipe — Small and Large Diameters, Iron & Steel, welded, seamless, corrugated

SPEED-LAY PIPE SYSTEM

Free Brochure

ALBERT PIPE SUPPLY CO., Inc.

Berry at North 13th Sts., Brooklyn 11, N. Y.
Phone EVERgreen 7-8100

FOR SALE — BARGAIN

Two Super "C" Tornadozers

In excellent condition.
21:00 x 25 tires.

STATE EQUIPMENT COMPANY INC.

438 East Brighton Ave. Syracuse, N. Y.
Telephone 75-5169

7'x60' Christie indirect heat dryer.
Nos. 12, 10, 9, 8, 7½ and 6 Allis-Chalmers gyratory crushers.

222, 622, 636 & 236 Allis-C Hydrocone Crushers.

1—42"x16", 36"x16", and 24"x12" crushing rolls.

1—Complete lime hydrating plant.

1—42"x48", 24"x36", 18"x36", 15"x30", 12" x 24" jaw crushers.

1—800, 1200 or 1500 bbl. cement plant.

14", 16", 8" and 6" McCully Superior Gyratory Crusher.

5' x 50' x ½" dryer. 8' x 80' & 7' x 120' kiln. New and Rebuilt Dryers—Kilns and Coolers

W. P. HEINEKEN, INC.
50 Broad St., N. Y. Tel. Wh. 4-4236

SALE OR RENT

- 1—780 CFM Chl. Pneu. OCE Comp. dir-connected to 125 HP syn. Motor, new 1944.
- 1—45 Ton Clyde Whirley 100' B. 3/60/440V.
- 1—5/8 Ton B-S. Tandem Roller.
- 1—1/2 Yd. Bay City Model 25 Crane.
- 1—30 Ton Orton Diesel Loco. Crane.
- 1—50 Ton Diesel Loco. Crane.
- 1—20 Ton Bay City Model 180 Truck Crane.
- 1—35 Ton P & H 355 Truck Crane, new 1952.
- 1—25 Ton G.E. Diesel Elec. Loco.
- 1—30 Ton Davenport Diesel Loco.
- 1—30 Ton Plymouth Gasoline Loco.
- 1—45 Ton G.E. Diesel Electric Locomotive.
- 1—65 Ton Whitcomb Diesel Elec. Loco.

B. M. WEISS COMPANY

Girard Trust Company Bldg.
Philadelphia 2, Pennsylvania

NEW and RELAYING RAILS

Call Foster for all sizes and sections, promptly shipped from nationwide warehouses.

Switch Material and Track Accessories properly matched and fabricated to your exact requirements.

LB FOSTER Co.
PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4
HOUSTON 2 • LOS ANGELES 5

FOR SALE PRACTICALLY NEW TD-24

IH TD-24, world's most powerful tractor, serial #1790, brought up to 1953 factory standards from engine thru final drives and New Pullman hydraulic straight dozer. Tractor carries 3 months guarantee and Dozer regular 6 month factory guarantee.

Clearance Sale price — only \$17,500. F.O.B. Morton, Ill.



A. E. HUDSON COMPANY
Route 150 Morton, Illinois

FOR SALE

COMPRESSOR, Gardner-Denver, 365 CFM, portable, Model WBH-2007D, Ser. #106305, with Caterpillar Diesel D13000 Engine.

CLAMSHELL BUCKET, Blaw-Knox, 2½ CY, Model 730, Ser. #H-5272.

DRAGLINE BUCKET, Bucyrus Standard Red Arch, 2½ CY, Model AV, Ser. #135.

HAND PLANER & JOINTER, Oliver, 16", Model 166-CD, Ser. #67086, 5-HP Electric Motor.

CONCRETE BUCKET, Johnson-Fitzgerald, 1 CY, Manual, Ser. #32732-H.

Located at Clark Hill Dam Site, 25 miles above Augusta, Ga.

ALLSTATES CONSTRUCTORS, INC.
P. O. Box 658, AUGUSTA, GA.
Phone County 5300, H. O. Locher, Jr.

FOR SALE OR RENT

1½ yd. Koehring 605 Diesel Crane 140' bm. GM Diesel. Long Tracks.
30 ton Industrial Brownhoist Gas Locomotive Crane. 70' bm.
44 ton GE Diesel-Elec. Loco. new 1951.
25 ton GE Diesel-Elec. Loco. new 1950.
30 yd. Western & Koppel Air Dump Cars. Lift Doors. Side Aprons.
30 ton Stiffleg Derrick & 3D Hoist.
750 CFM G-D Compr. 125 HP Motor.
130 HP Christian 2D Diesel Hoist.

Mississippi Valley Equipment Co.
513 Locust St., St. Louis 1, Mo.

ELECTRICAL MACHINERY

Motors and Generators, Controls and Repair Parts. Large Stock. New and Rebuilt. Guaranteed Expert Repair Service. Send us your inquiries.

V. M. NUSSBAUM & CO.
Fort Wayne, Indiana

FOR SALE

One 4' x 8' Single Deck Scalping Screen, Serial #2869.

One McLanahan & Stone 60" reciprocating feeder, serial #B-473.

One 36" x 60" Allis Chalmers single roll "Fairmont" type crusher complete with 150 HP 220 3 PH motor, controller, magnetic switch, and starting grids. Also one spare roll and bull gear, one pinion shaft, one complete set of roll segments, plus one extra segment and one set of crushing block plates.

One F. E. Reed & Company 14" Lathe with 1½ HP G.E. Motor.

One 2½ cubic yard Pettibone Mulliken H. D. Drag Bucket, Serial #588.

One Rock Plover for Caterpillar D8.

One hundred and seventy-five Hammer Arms for Iowa Manufacturing 4033 Hammermill.

Ninety-five feet of 20" Conveyor Belt.

Assorted wire screens. New, for 48" x 58" Allis Chalmers.

One Osgood Shovel Front ½ cubic yard, Model 200.

One 24" Eagle Screw classifier.

One 3-Deck Pioneer Screen 4' x 12'.

One 2-Deck Pioneer Screen 4' x 12'.

MAULE INDUSTRIES, INC.
P. O. Box 1289, Miami Beach, Florida

NEW RAILS RELAYERS IN STOCK—PROMPT SHIPMENT

All sections, new and relaying Rails, Angle Bars, Frogs, Switches, Spikes, Bolts and all accessories; cars and locomotives.

Phone Wire Write

M. K. FRANK
480 Lexington Ave. Park Building
New York City Pittsburgh, Penna.
185 Lake St., Reno, Nevada

FOR SALE

Modern 60 H.P. Wagner motor. 175 RPM—440 V—60 cyc. type CP 1—71 Amp. 504 frame.

CUYAHOGA WRECKING CO.
12645 Greenfield, Detroit, Michigan

E. LEE HEIDENREICH JR.

CONSULTING ENGINEERS

Quarries
Crushing Plants
Cement Plants
Storage Methods
Operating Costs

75 Second Street
Newburgh, N. Y.
Phone 1828

9 South Clinton St.
Chicago 6, Ill.
Ph. Franklin 2-4186

Operation
Plant Layout
Design
Appraisals
Construction

LIQUIDATION COMPLETE LIME AND HYDRATE PLANTS MILLTOWN, INDIANA

2—Vulcan 8' x 125' Rotary Kilns.
1—Raymond #402 Bowl Mill, 40 HP.
1—Allis Chalmers 7' x 60' Rotary Dryer.
1—Vulcan 4½' x 50' Rotary Dryer.
1—Allis Chalmers 48" x 36" Jaw Crusher.
2—Raymond #1 Pulverizers complete with 5'6" dia. Raymond double whizzer Separators, piping cyclones, fans.
1—Raymond 5 Roll high side Mill with double whizzer, Separator, piping, fan and motors.
1—Seco 4' x 10' double deck Screen.
2—Clyde #3 Hydrators, motor driven.
1—Apron Feeder 42" x 10', 10 HP motor.
1—Apron Feeder 18" x 11'6", 5 HP motor.
13—Bucket Elevators 20 to 70' ce 12" x 6" to 42" x 18" x 25" buckets.
10—Steel Bins 45 to 450 ton capacity.
300 feet of 9" and 12" Screw Conveyor.
Miscellaneous items including motors, structural steel, tanks, hoists, portable car loader, car puller.
Steel Building 70' x 247' x 45' high adaptable for re-erection.
All of the above available for immediate removal. Representative on premises.

AT OTHER LOCATIONS

2—Reeves 7' x 160' x ¾" Rotary Kilns.
2—Reeves 7' x 120' x ¾" Rotary Kilns.
2—Allis Chalmers 9' x 80' x ¾" Rotary Kilns.
1—Reeves 5' x 67' x 5/16" Rotary Dryer.
1—Cummer 5' x 40' x ¾" Rotary Dryer.
1—F. L. Smith 4' x 30' x ¾" Rotary Kiln.
2—Cummer 4' x 20' x 5/16" Rotary Dryer.
2—Link Belt 3'10" x 16' Roto-Louvre Dryers.
5—Hardinge Mills 4½' x 16', 5' x 22", 6' x 22", 6' x 48", 10' x 48".
2—Raymond High Side Roller Mills, 3 and 4 roll.
6—Tyler Hammer Screens 3' x 5', 4' x 5', 4' x 7', 4' x 10', 5' x 10', 4' x 15'.
1—Seco 4' x 10' double deck screen.
1—Rogers 10' x 16' Jaw Crusher.

PARTIAL LIST
Send us your inquiries

BRILL EQUIPMENT COMPANY
2401-3 Third Ave., New York 51, N. Y.
Tel: Cypress 2-5703

Used Machinery

1—5" LeCourtney B2 centrifugal water pump—665 gpm, 43' head, 1750 rpm, with complete base, no motor ... \$85.00
1—6" x 6" used sand discharge hose: good condition ... \$35.00
1—New Pantograph type push-off device, manufactured by Clark Equipment—never used—new 1952 ... \$690.00
100 New wooden oak 40" x 48" "Take it or leave it" pallets never used—cost \$7.39 each ... \$4.00
1—Westinghouse used induction motor with base—100 hp, 580 rpm, type MS, 3/60/440, serial #987904—with GE drum controller and starter including one 1948 100 hp GE type B, catalogue #232638-64-T, magnetic starter ... \$550.00
1—Westinghouse used 75 hp induction motor, 870 rpm, style #160835, serial #1320014—without base—in perfect condition including GE starter CR 1034 K1, size 2, catalogue #2019079 G 10—complete with relay—2 speed starter \$775.00
1—General Electric circuit breaker 3/60/440, MI 1969132 G 2, P 3108, type HA 2, 100 hp capacity ... \$50.00

ALL ITEMS SUBJECT TO PRIOR SALE

SOUTH RIVER SAND CO.
OLD BRIDGE, NEW JERSEY

WHERE TO BUY

BAY CITY \$65, current mdl, 1 1/4 cy. Shovel & Dragline Comb. Excellent. \$6500.00 Rental purchase.

LIME 1204 3 cy. Shovel & Dragline Comb. Ser. No. 4137, swamp tracks, Cummins diesel, excellent. \$86,500.00.

UNIVERSAL Portable Conveyor, 24" belt, 30' long, Wisconsin engine. Rubber tires. Brand new. \$1700.00.

JAEGER 500 cfm Portable Compressor w/Cat. D13000 diesel, only 2000 hrs. use. Mounted on pneu. tires. Excellent. \$5000.00 Rental purchase.

HOUGH HF PAYLOADER, 3/4 cy. hyd. trip bucket, new tires, #20418, like new appearance. \$3250.00.

CEDAR RAPIDS 20x36 Jaw Primary, including apron feeder, Cat. diesel power, underconveyor, mounted pneu. tires. Excellent. \$13,000.00.

AUSTIN WESTERN 18x36 r.b. Jaw Crusher w/apron feeder, used 30 days. \$6250.00.

SIMPLICITY 4x12 4-deck Vibr. screen w/steel bin mounting. Excellent. \$2200.00.

TELSMITH 40x22 r.b. Double roll crusher. Al. \$1000.00.

SIMPLICITY 4x12 3-deck Vibr. screen. Like new \$2000.00.

SECO 6'x12' 2-deck Vibr. screen. Good \$1500.00.

SIMPLICITY 3'x10' 2-deck Vibr. screen. \$950.00.

KOEHNING W200 Dumpster, w/GMC 471 diesel, reconditioned. \$4250.00.

WENZEL MACHY. RENTAL & SALES CO.

2136 Jefferson St., Kansas City, Mo.

PLEXIGLAS CUT TO SIZE

STRONG PROTECTIVE WINDOWS FOR DROP BALL AND OTHER HEAVY EQUIPMENT.

McCLARIN PLASTICS

P. O. Box 1680 Hanover, Pa.

Wilson DRILLING RIG w/6x12" pump, derrick etc. **CRUSHERS:** 1020 AW, 1218 Acme, 1524 Diamond, 1536 Pioneer, 2036 Univ, 2436 Lippman, 2450 Champion, 3042 Pioneer, 4836 & 4248 Traylor & 4860 AC JAW. # 19, 25, 37, 37 1/2 & 38 Kennedy, 322R Allia, 10" & 14" McCully, 14" Traylor, 1618 TelSmith GYR. 2, 3 & 4' Symons. 4' TS Traylor dbl. reduc.

MILLS: Williams & Raymond 4 roll. Raymond 35" vert. 6x12" Marcy, 4x15" Rod. Williams 4, 5 & 20. Jeffrey 2436 & 3636 Hammer.

DRYERS: 4 1/2x30, 4x40, 5x40, 6x30 & 6x50'. **DRAGLINES:** Lorain L501 & L820. P&H 1055LC. Northwest 95. Marlon 49A & 1113A.

SHOVELS: Lorain 40, Buckeye 70, NW25, Marlon T. 37 & 93M. Lorain 77. P&H 653B Bucyrus 37R, 44R, 54R, 75B & 80B Lima 802 & 1301.

25,000 ft. 8" 28.5 PIPE good for 1000# pressure.

MID-CONTINENT EQUIPMENT CO. INC. 8321 Gannon — Wydown 1-2826 — St. Louis 24, Mo.

FOR SALE

1—18" x 30" AC heavy Blake type jaw crusher, good condition.

1—6 x 12 Sturtevant Jaw Crusher.

1—Day Hammer Mill #20 Size ER.

1—3 x 6 Symons Rod Deck Screen with 5 HP. motor and drive.

1—66" Pacific Hoe type drag scraper.

2—4" Wilfley belt driven sand pumps.

2—Wagon Drills, C. P. & I. R. makes.

1—3 x 8 Cedar Rapids vibrating screen.

WESTERN MACHINERY COMPANY

Phoenix, Arizona

Box 3465 Ph. AL-34101

1—9" x 15" Champion Jaw Crusher.

1—10" x 20" Champion Jaw Crusher.

1—12" x 26" Champion Jaw Crusher.

1—NEW 24" XXB Gruender Shredder or Pulverizer, with 25 H.P. Motor & V-Belt Drive. Cheap.

1—Type 30 New Holland Impact Crusher.

1—Pair New Holland 16" x 16" Rolls (Lot spare shells & parts.)

1—Pair Special 35" x 14" Rolls.

1—12" Enclosed Cent. Disc. Elevator, 78" centers with Motor. Heavy case.

We build open and totally enclosed bucket elevators and belt conveyors to suit your needs.

Large stock chain, sprockets, buckets and conveyor pulleys—new and used.

JOHNSON & HOEHLER, INC.

P. O. BOX 102 LANSDOWNE, PA.

JAW CRUSHERS

6" x 3" to 60" x 48"



Before buying or selling

any FARREL-BACON

JAW CRUSHERS it will

pay you to consult

BACON-PIETSCH CO., Inc.

75 No. Maple Ave.—Gilbert 5-3700

RIDGEWOOD, NEW JERSEY

Engineers and Manufacturers

Machine Shop Facilities

FEEDERS, Conveyors, Screens, etc.

Send for Catalogue

FOR SALE

TelSmith Sand Drag 48" x 24' tank size. 48 yds. per hr. 1,150 gal. per minute. Cheap, good shape.

PRINCE GEORGE SAND & GRAVEL CO.
Laurel, Maryland

FOR SALE

SIX—500 CU. FT.
INGERSOLL-RAND DIESEL DRIVEN AIR COMPRESSORS

Mounted on Pneumatic Tires—Good Condition

CONTRACTORS TRADING & EQUIPMENT CORP.

232 FULTON ST., N. Y. 7. N. Y. BRelay 7-3940



FOR SALE

1—60" TelSmith Ajax Scrubber Screen. 17'0" long on steel frame. Excellent condition.

NEAL GRAVEL COMPANY

Covington, Indiana

FOR SALE

One Kent #10 Super Linteliator, complete with 4", 6", 8", 10", and 12" attachments arranged for modular dimensions. Also equipped with one electric mechanical vibrator, complete with start and stop control with 220 or 440 volts, 3 phase, 60 cycle.

12 Welded Steam Racks and 72 ten ft. 10", 8", Channel Pallets. Used for 3 months.

RADCLIFF GRAVEL CO. INC.

P. O. Box 168, Mobile, Alabama

FOR SALE — BARGAINS

JEFFREY CRUSHER—1 Jeffrey type B3, 30"x36", swing hammer crusher with AC or DC motor.

CONVEYORS—3 Fanco type RM. Aluminum portable 20' long, 16" wide, with rubber belt and tires. Belt speed approx. 175 fpm.

Write for stocklist

DUQUESNE ELECTRIC & MFG. COMPANY

Pittsburgh 6, Pennsylvania

DEPENDABLE USED MACHINES

Special.—Lorain 3/4 yd. comb. shovel and dragline, rebuilt in our plant.

Simplicity 2x6 screen

Pioneer 4x8 screen

40' bucket elevator

Diamond 9x18 crusher

45 ton port. bin

Cedar Rapids 16x16 roll crusher

Cedar Rapids 40x20 roll crusher

Pioneer 3' x 14' scrubber screen

Morris 10" manganese pump

Kohler 1.5 KVA light plant

Byers 1/2 yd. shovel.

Lorain 1/2 yd. dragline.

Bay City 3/4 yd. dragline.

Bay City 1 1/4 yd. shovel.

Engle cinder crusher.

These machines reconditioned in our newly-built daylight plant. Come see them!

10030 Southwest Highway

TRACTOR & EQUIPMENT CO.

Oak Lawn, Illinois

6 FT. X 60 FT. DRYER

1—Allia Chalmers 1/2 inch shell rotary dryer, cradle roller supports, counter flow, discharge hood and comb. chamber.

Located Eastern Tenn.

DARIEN CORP.

60 E. 42nd St., New York, N. Y.

DRAGLINES

9 1/2 yd. Bucket, 165 ft. Aluminum Boom, all-electric, mounted on Caterpillar Crawler. Price \$50,000.00, subject to prior disposition.

ALEX T. McLEOD

Marionetta, Kansas

FOR SALE

12 x 24 Eagle Impact Hammermills. New—never used.

THE KELLEY ISLAND LIME & TRANSPORT CO.

1132 Leader Building, Cleveland 14, Ohio



CORE DRILLING

--anywhere!

"We look into the earth"

PENNSYLVANIA

DRILLING COMPANY

Pittsburgh 20, Pa.

3 YD. DRAG SCRAPER

Sauerman Crescent Bucket, Rigging, and 3 Drum Hoist, with extra cable. All in excellent condition. \$9,500.

W. K. HALL

5426 Lewis St., Dallas, Texas

KEEP ABREAST

WITH

INDUSTRY TRENDS

THROUGH

ROCK PRODUCTS

WHERE TO BUY

1600 hp Fairbanks-Morse diesel 38-D-8-1/8. Complete dredge pump 20" suction, 18" discharge. International tractors T.D. 18 & T.D. 9.

2' Symons—3' Symons standard and shorthead—4' Symons standard and shorthead—36" Tel-smith—2636 A.C. Hydrocone—A.C. 10 K gyratory—A.C. 1 1/2 K Cone Crusher—28" Kennedy Van Saun—28" Tel-smith Intercone—7" Newhouse—A.C. 12 K & 12 N Gates.

Jaw Crushers 48 x 60 — 42 x 48 — 36 x 48 — 30 x 42—24 x 36 others. Roll crushers—rod mills — ball mills — hammer mills — gravel plants.

Classifiers — compressors — converters — conveyors — blast hole drills — dump cars — engines — feeders — generator sets — hoists — rotary kilns & dryers — locomotives — motors — pumps — shovels — draglines — screens — transformers — Euclid trucks.

STANLEY B. TROYER
Theatre Bldg. — Tel. 500 — Crosby, Minn.

FOR SALE

2—#16 Type B Smith Tube Mills, Complete with Drives, Manganese Steel Lining Plates and 20 Tons Steel Grinding Balls.
2—225 H.P. Synchronous Motors.
1—Gruendler 5x4 Hammer Mill (42"x24").
1—75 H.P. Motor for above.
1—S & A Pan Conveyor, 100' Centers, 30" Pans.
1—CR 11 Stearns Magnetic Pulley.
2—Type 100 FC, 3 Tube Cement Packers.
2—15 H.P. Motors for Above.
1—Type N Cement Gun.
1—Imperial Type 10 Ingersoll Rand Air Compressor.

Other Miscellaneous Equipment.

SHERIDAN-MARQUETTE
WELDING SERVICE
800 W. Marquette Street, Ottawa, Illinois

FOR SALE

While they last. Block Machines and Pallets. 2 No. 9 Jolterets \$1000.00 each, 4" and 8" Modular pallets. 17¢ each. F.O.B. Mishawaka, Ind.

CONCRETE PRODUCTS CORP.
2700 W. Ewing Ave. Ph. 5-1313
Mishawaka, Indiana

1—Hersey 3' x 24' direct head drier, counter current.
5—Tyler Niagara stainless 2' x 8' & 3' x 8' one deck screens.

1—Kennedy smooth roll crusher, 10" x 24".
CHEMICAL & PROCESS MACHINERY CORP.
146 Grand Street, New York 13, N.Y.
WORh 4-8130

1 Stearns No. 7—complete with extra attachments.
3500 8" Pallets.
45 Steel Racks—64 Block capacity.
1—28 ft. Mixer.
\$2900.00 f.o.b. your yard or will accept reasonable trade.

LUCISANO BROS.
Tullytown, Pa. Bristol 8-4677

WANTED

8' or 9' diameter x 120' to 150' long Lime Burning Kiln. Advise location, age, manufacturer, condition and price.

THILMANY PULP & PAPER CO.
Kaukauna, Wisconsin

WANTED

To purchase active interest in profitable mining, quarrying, lime plant in southeastern area. Must stand rigid investigation. Replies confidential.

Box M-1, ROCK PRODUCTS
309 W. Jackson Blvd., Chicago 6, Illinois

Quarry Supt.-Production Manager, thoroughly experienced, with over 15 years production record in traprock, limestone and granite. Specialist in drilling and blasting procedures using rotary, well or wagon drill routines, competent to handle all phases modern quarry operation from stripping to handling of finished product. Seeks medium to large quarry connection, excellent references, locate anywhere in U.S. Perfect health, 48 years of age, married. Box L-100, ROCK PRODUCTS, 309 W. Jackson Blvd., Chicago 6, Illinois.

WANTED

Two Metal Lined Tube Mills, approx. 5 ft. x 22 ft.

Two Pug Mills, approx. 24 in. x 7 ft.

One 16 ft. Air Separator.

G. & W. H. CORSON, INC.
Plymouth Meeting, Pa.

WANTED

Producer of Commercial stone to operate Quarry near Aiken, South Carolina. Quarry was furnishing stone Savannah River H-Bomb Project—Contract completed. Spur track—half million tons stone stripped. Hundred thousand tons ready for crusher. Water, electricity available. Foundations for crushers—Supply unlimited, passing specifications. Advantage in rates 6 counties and parts of others—Our concrete products plant uses four to five hundred tons daily. Territory good, thousand tons or more daily.

Available at once. Contact W. R. Carson, Southeastern Concrete Products Company, P.O. Box 337, Cayce, S. C. Phone 3-5993, Columbia, S. C.

WANTED

LOG WASHER

Advise location, condition and price.

FRED E. THOMAS
Greentown, Indiana

WANTED

DREDGE

6 or 8 inch

NORM SCHAEFER

La Crosse 62 Copeland Wis.

Wanted Machinery or Plant

Including Rotary Kilns, Direct Heat Dryers, Pulverizers, Crushers, Ball Mills, Vibrating Screens, Power Shovels and Cranes, Bucket Elevators, Conveyors, Filters, Diesel Engines.

P. O. BOX 1351, Church Str. Sta.
New York 6, N. Y.

WANTED

1—Allen sand settling tank No. 100-0.

HENRY DE WENT
Jenison, Michigan
Phone Ardmore 6-3466

WANTED

Railroad Carspotter, Railroad Car Shakeouts, Mine Hoists & Crushers.

HAWKINS & COMPANY
6334 1/2 N. California Ave.
Chicago 45, Illinois

CEMENT ENGINEER

Positions open in process technology; some traveling. For Chemical or Mechanical Engineering graduates with experience in cement plant operation. Location in Chicago suburb. Reply to

Box M-2, ROCK PRODUCTS
309 W. Jackson Blvd., Chicago 6, Illinois

INDEX TO WHERE TO BUY

Albert Pipe Supply Co., Inc. 302
Allstates Constructors, Inc. 303

Bacon-Pietsch Co., Inc. 304
Bonded Scale and Machine Co. 300
Brill Equipment Company 303

Chemical & Process Machinery Corp. 305
Concrete Products Corp. 305
Consolidated Products Co., Inc. 302
Contractors Trading & Equipment Corp. 304
Corson, G. & W. H., Inc. 305
Cuyahoga Wrecking Co. 303

Darien Corp. 304
De Went, Henry 305
Duquesne Electric & Mfg. Co. 304

Foster, L. B., Co. 302
Frank, M. K. 303

Guion, H. P. 300

Hall, W. K. 304
Hawkins & Company 305
Heat & Power Co., Inc. 301
Heidenreich, E. Lee, Jr. 303
Heineken, W. P., Inc. 302
Hudson, A. E., Company 303

Illinois Road Equipment Co. 302

Jaeger-Lembo Machine Corp. 299
Johnson & Hoehler, Inc. 304

Kelley Island Lime & Transport Co. 304

Lucisano Bros. 305

Maule Industries, Inc. 303
McClarin Plastics 304
McLeod, Alex T. 302, 304
Mid-Continent Equipment Co., Inc. 304
Midwest Steel Corp. 304
Mississippi Valley Equipment Co. 303

Neal Gravel Company 304
Nussbaum, V. M., & Co. 303

O'Neill, A. J. 298

Pennsylvania Drilling Company 304
Prince George Sand & Gravel Co. 304

Radcliff Gravel Co., Inc. 304

Schaefer, Norm 305
Sheridan-Marquette Welding Service 305
Smith, H. Y., Co. 304
Smith, L. B., Inc. 301
Southeastern Concrete Products Company 305
South River Sand Co. 303
Stanhope, R. C., Inc. 298
State Equipment Company, Inc. 302
State Tractor & Equipment Co. 301

Thilmany Pulp & Paper Co. 305
Thomas, Fred E. 305
Tractor & Equipment Co. 304
Troyer, Stanley B. 305

Unverzagt, G. A., & Sons, Inc. 301

Walsh, Richard P., Co. 300
Weiss, B. M. Company 302
Wenzel Machy. Rental & Sales Co. 304
Western Machinery Company 304
Wayne, Roy C., Supply Co. 298

More Tonnage



"Cape Ann" Forged Steel Drop Ball

Ruggedly designed and drop tested to insure maximum breakage. Lifting link protected by deep recess to minimize cable replacement. Adaptable for swivel or shackle.

Used by leading quarries for economical secondary breakage.

2000 to 8000 lbs.

Prompt Shipments

For further information write—

Cape Ann Anchor & Forge Co.

Post Office Box 360
Gloucester, Mass.

INDEX TO DISPLAY ADVERTISERS

Allis-Chalmers Mfg. Co.	25, 45, 166, 189	Kent Machine Co.	241
Allis-Chalmers Tractor Division ...	12, 13, 60	Klingelhofer Machine Tool Co.	247
American Brake Shoe Company		Koehring Company	208, 209
American Manganese Steel Division	61		
American Chain & Cable Company	41	Le Roi Company	6
American Pulverizer Company	191	Lesmann Manufacturing Company	262
American Rubber Manufacturing Co.	43	LeTourneau-Westinghouse Company	10, 11
American Steel Foundries	72, 73	Lima Shovels	54
Aquadyne Corporation	200	Link-Belt Company	1, 264
Armstrong Bray & Co.	198	Lippmann Engineering Works	14
Babcock & Wilcox Company	37	Manhattan Rubber Division	193
Bailey Meter Company	32	Manitowoc Engineering Corp.	8
Baldwin-Lima-Hamilton Corporation	54	Mapico Color Division	236
Barber-Greene Company	48, 49	McLanahan & Stone Corporation	172
Baugham Manufacturing Co., Inc.	248	Merrick Scale Mfg. Co.	190
Bemis Bro. Bag Company	55	Moore Dry Kiln Company	250
Berg Vault Co.	198		
Bergen Machine & Tool Co., Inc.	237, 252	National Agricultural Limestone Institute ..	44
Besser Manufacturing Co.	204, 213, 214, 248, 256	National Conveyor & Supply Co.	240
Bin-Dicator Co.	266	National Crushed Stone Association	267
Blaw-Knox Company	198	National Ready Mixed Concrete Association ..	261
Bucyrus-Erie Company	265	National Sand & Gravel Association	261
Builders Equipment Company	246	National Wire Cloth Co., Inc.	198
Burmeister, L. Co.	211	Nordberg Mfg. Co.	177
Butler Bin Company	212	Northwest Engineering Company	5
Cape Ann Anchor & Forge Co.	306	Oronite Chemical Company	206
Caterpillar Tractor Co.	74, Inside Back Cover	Oswalt Engineering Service Corp.	240
Chain Belt Company	235, 263		
Chase Bag Company	76	Pak-Crete Sales	234
Chevrolet Motor Division	259	Pettibone Mulliken Corporation	16, 17, 28
Chicago Pneumatic Tool Company	40	Pruschak Machine Co.	250
Chrysler Corporation		Productive Equipment Corp.	24
Industrial Engine Div.	180	Pumice Incorporated	252
Clark Equipment Company	65		
Cleveland Rock Drill Division	6	Quinn Wire & Iron Works	252
Cleveland Vibrator Company	244		
Cleveland Wire Cloth & Mfg. Co.	199	Raybestos-Manhattan, Inc.	193
Clipper Manufacturing Co.	239	Raymond Division	18
Colorado Fuel and Iron Corporation	175	Resisto-Loy Co.	260
Columbia Machine Works	207, 257	Riddell, W. A., Corp.	243
Columbian Carbon Company	236	Roebbling's, John A., Sons Corporation	47
Combustion Engineering, Inc.	18	Rollway Bearing Co.	29
Concrete Equipment Company	250	Ross Screen & Feeder Co.	260
Concrete Transport Mixer Co.	205	Ryerson, Joseph T., & Son, Inc.	80
Continental Gin Company	39		
Cross Engineering Company	200	Sauerman Bros., Inc.	187
		Schild Bantam Company	30
Deister Concentrator Company	174	Screen Equipment Co., Inc.	66, 67
Deister Machine Company	268	Sight Feed Generator Company	192
Des Plaines Concrete Machinery Co.	248	Simplicity Engineering Company	51
Diamond Iron Works, Co.	31	Smith Engineering Works	62, 63
Dodge Trucks	58	Smith, F. L., & Co.	68, 71, 171
Dorr Company	20	Smith, T. L., Company	210
Dur-O-Wall Products, Inc.	242	South River Sand Co.	252
		Standard Metal Mfg. Co.	196
Eagle Iron Works	78	Standard Steel Corporation	53
Ellerman Co.	182	Star Expansion Products Co.	252
Erickson Power Lift Trucks, Inc.	246	Stearns Manufacturing Company, Inc.	258
Euclid Division	57	Stoody Company	159
		Stulz-Sickles Co.	186
Falk Corporation	52	Syntron Company	183
Farrel-Bacon	174		
Foxboro Company	266	Texas Company	84
Frederick Iron & Steel, Inc.	266	Thew Shovel Co.	46
Fuller Company	26, 27	Thomas Foundries, Incorporated	161
		Three Point Belt Lacing Co.	194
Galigher Co.	196	Timken Roller Bearing Company	4
General Motors Corporation	259	Torrington Company	42
General Refractories Company	22, 23	Towmotor Corporation	249
Gerlinger Carrier Co.	245	Travel Drill Co., Inc.	262
Goodrich, B. F., Company	3	Traylor Engineering & Mfg. Co.	7
Goodyear Tire & Rubber Co.	Back Cover	Truax Machine & Tool Company	250
Gruendler Crusher & Pulverizer Co.	179		
Gulf Oil Corporation	9	Union Wire Rope Corporation	21
		Unit Crane & Shovel Corporation	251
Hammermills, Inc.	28	United States Steel Corp.	202
Hammond Bag & Paper Company	200	Universal Atlas Cement Company	202
Hardinge Company, Inc.	194	Universal Engineering Corporation	16, 17
Harnischfeger Corporation	59	Universal Vibrating Screen Co.	186
Hazard Wire Rope Division	41		
Heil Company	178	Vulcan Iron Works	56
Hendrick Manufacturing Company	264		
Hercules Powder Company	38	Western Machinery Company	64
Hough, Frank G., Co.	197	White Motor Company	169
		Willey, A. R., & Sons, Inc.	185
International Harvester	33, 34, 35, 36	Willard Concrete Machinery Sales Co.	242
Iowa Manufacturing Company	19, 199	Williams, C. K., & Co.	238
		Williams Patent Crusher & Pulverizer Co.	Inside Front Cover
Jaeger Machine Company	15	Williams, Roger F.	242
Johnson, C. S., Co.	208, 209	Wood, Charles E., Company	30
Jones, J. A., Concrete Machinery	236		
Joy Manufacturing Company	165	Yuba Manufacturing Co.	195
Kennedy-Van Saun Manufacturing & Engineering Corp.	163		

**Announcing
Major Advance in
Tractor Design!**

New Caterpillar oil-type flywheel clutch

now standard in the D8, D7 and D6!

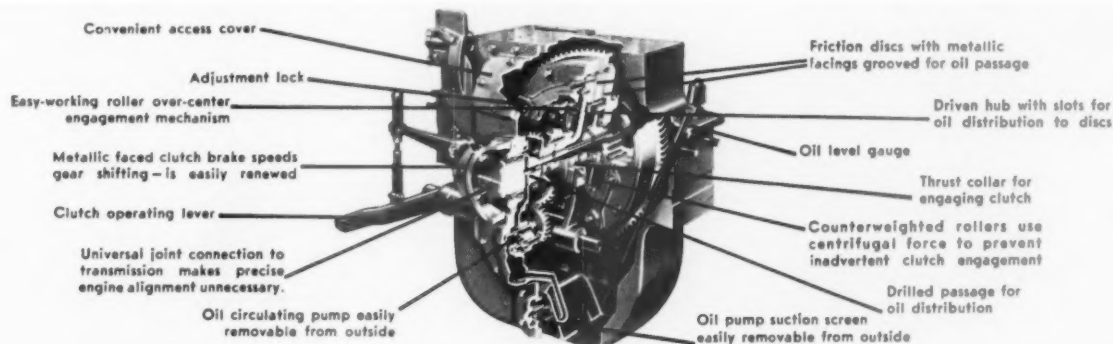
Once again Caterpillar leads the field in an advance that boosts production, cuts down time and lowers operating costs. The new oil-type flywheel clutch, now standard in the Cat® D8, D7 and D6 Tractors, means a new high in money-making performance for you from these three rugged machines. Exhaustive on-the-job tests prove that this clutch lasts many times longer than other clutches under identical conditions. They also prove it enables you to run these tractors two to four times longer before making clutch adjustments.

Here's how it works. The oil system is entirely separate from that of the engine. While the engine is running, the oil pressure flows to all working parts of the clutch. Oil is fed constantly through the radial and circumferential

grooves in the friction discs even when the clutch is engaged, thus cooling the friction discs and pressure plates at all times. As a result, there's minimum opportunity for wear and heating to take place. That's why adjustments are very seldom needed and disc replacement normally required no more often than engine overhauls. For easy access, the clutch has a dirt-proof housing with a big opening at the top—a mechanic doesn't have to disturb engine or transmission to get at it.

Get the whole picture from your Caterpillar Dealer. Remember, he backs all sturdy yellow equipment with genuine parts service—there's never an "orphan" in the Caterpillar line. Ask him to demonstrate on the job!

Caterpillar Tractor Co., San Leandro, Calif.; Peoria, Ill., U.S.A.



New Caterpillar oil-type flywheel clutch gives you greater dependability and lower service and maintenance costs than any other clutch under identical conditions, normal or tough.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®



GOODYEAR QUALITY PAYS OFF AGAIN:



35 YEARS ON THE JOB — AND STILL FULL OF DRIVE

HERE's the flat transmission belt that smashes all records for service. Installed in 1917, it faithfully did its daily job of powering a large grain crusher. It was still going strong when the mill was dismantled in 1952. So strong, in fact, that it is still being used to drive an ensilage chopper on a farm — eight hours a day. And it

looks like it will go on indefinitely.

Records such as this are not a rare exception, when the G.T.M. — Goodyear Technical Man — is in the picture. His special knowledge of industrial rubber goods — backed by the world's highest standard of quality in materials and workmanship — invariably

adds up to longer service at lower ultimate cost.

To get the most out of rubber in every conceivable industrial use, consult your G.T.M. You can contact him through your Goodyear Distributor or by writing Goodyear, Industrial Products Division, Akron 16, Ohio.

GOOD YEAR

THE GREATEST NAME IN RUBBER

We think you'll like "THE GREATEST STORY EVER TOLD" — every Sunday — ABC Radio Network — THE GOODYEAR TELEVISION PLAYHOUSE — every other Sunday — NBC TV Network